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This Issue in Brief

The tipping system is opposed by organized labor in practically all the trades in which the system is prevalent. Tipping is in essence merely a method by which the public supplements the inadequate wages paid by employers. It implies servility on the part of the recipient and is thus opposed to the principles of trade-unionism. The unions affected are in favor of the complete abolition of tipping and a corresponding increase in straight wages (p. 1).

A series of railroad arbitrations have been held during the year that the railroad labor act has been in effect. Under this act disputes which can not be settled by the parties themselves or through the mediation of the United States Board of Mediation may be referred to arbitration. Thus far all unsettled disputes have been so referred. In these arbitrations the employees, with few exceptions, have received some wage increase, although usually considerably less than requested. The outstanding case in which an upward adjustment of wages was denied was that of the conductors and trainmen on some 55 western railroads. In the case of maintenance-of-way arbitrations the increases ran as low as one-half cent per hour, or \$1.04 per month (p. 5).

The output per worker between 1899 and 1925 increased 45 per cent in agriculture, 171 per cent in mining, and 48 per cent in manufacturing and railway transportation, according to a study made by the United States Department of Commerce. Much of this increase in productivity is attributed to the increase in the use of power equipment. Thus, in manufacturing, the average horsepower of prime movers per worker was 2.1 in 1899 and 4.3 in 1925; while in mining and quarrying the increase was from 4.9 in 1902 to 6.2 in 1919 (p. 25).

Accidents in the iron and steel industry continued to decline in 1926, according to the annual study of the Bureau of Labor Statistics; the accident frequency in a large group of selected plants being 6.8 per 1,000,000 hours' exposure in 1926, compared with 8.2 in 1925 and with 60.3 in 1913 (p. 35).

The number of families provided for by new dwellings in 78 cities was 187,233 in the first half of 1927, compared with 201,685 in the first half of 1926, according to the semiannual report of the Bureau of Labor Statistics on building permits in principal cities. The average cost of one-family dwellings for which permits were obtained in the first half of 1927 was \$4,903 as compared with \$4,777 in the first half of 1926. Other details of the survey are given on page 87.

The average entrance wage rate for common labor in the United States on July 1, 1927, was 42.6 cents per hour as compared with 43.2 cents on January 1, 1927, and with 42.8 cents on July 1, 1926 (p. 126).

The modern wage policy of the American Federation of Labor emphasizes the importance of the factor of productivity and strives for higher "social wages—for wages which increase as measured by prices and productivity." A thorough analysis of the meaning and purposes of this new wage policy is made by the president of the federation (p. 129).

Industrial training for the natives of Alaska is being carried on by the United States Bureau of Education. Three schools located at points accessible from the different sections of the Territory have been established and others are planned. The courses offered include house building, carpentry, boat building, furniture making, sled construction, operation and repair of gas engines, marine engineering, tanning, navigation, ivory carving, and basket weaving. The natives are said to possess extraordinary manual dexterity. As a result of the work of the Bureau of Education and other agencies, the primitive conditions of life in Alaska have gradually disappeared except in the more remote regions (p. 76).

Unemployment insurance in Germany became effective October 1, 1927.—The system is administered by the State, the cost being borne in equal proportions by the workers and the employers. The benefit is fixed according to the wage or salary of the unemployed person and embraces the benefit proper and a family allowance. The benefit becomes payable, as a rule, the eighth day after notification. The claim to benefit arises after 26 weeks' payment of premiums and the period of benefit is likewise limited to 26 weeks. The benefit, including family allowance, varies from 60 to 80 per cent of the standard wage, depending on the wage or salary class (p. 67).

Social legislation in Uruguay is so advanced that "one may regard this little South American State as a vast social laboratory in which experiments of interest not only to Uruguay but to the world at large have taken place," according to the authors of an article on this subject (p. 10).

One day of rest in seven is required for all industrial and commercial employees in Colombia, according to a recent law. Sunday is established as the rest day, but in the case of continuous industries, and in those in which Sunday closing would work hardship to the public, some other day in the week may be allowed, provided authorization is obtained from the Ministry of Industry. However, no worker may be employed on his rest day without his consent, and in case of being so employed he may choose between a compensatory rest day or not less than double pay for the time worked (p. 83).

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Opposition of Organized Labor to the Tipping System

THE question of the desirability of abolishing the tipping system is receiving the attention of the trades subject to this method of remuneration. Conspicuous among these are the so-called "personal service" occupations—those of the Pullman porters, waiters and waitresses, chauffeurs and hack drivers, barbers, employees of beauty parlors, etc. In all of these the union has given serious consideration to the question, and in most instances the conclusion has been unfavorable to the continuance of the system. Especially is this likely to be true as the union gains in power and inclusiveness in its field. A basic wage sufficient to maintain the worker and his family in moderate comfort is the main objective of all trade-unions, and the union is aware that in any occupation in which tipping is prevalent or customary the fact that the worker is the recipient of gratuities is one of the main obstacles to the securing of the basic wage. The employer feels that the acceptance of tips by his employees relieves him of the obligation to pay full wages, and tips, thereafter, have to take the place of wages. The result is a wage wholly inadequate for the maintenance of a family, and to make up the deficit the employee must depend upon the generosity of the patron, an uncertain factor at best.

The unions oppose gratuities also on the grounds that receiving tips tends to detract from the independence of the workers and to create a servile spirit among them. As soon, therefore, as the union feels that it is strong enough to do so it is likely to press for the establishment of a fair basic wage and the abolition of the tipping system.

It is safe to say that the abolition of tipping would be welcomed by the public. Many patrons now tip because they feel that the tip insures better service, or because without it the service will be mediocre. Many do so because they are cognizant of the fact that the "tipped" occupations are usually underpaid jobs and that the tip is the necessary supplement to the wage; or do so, unwillingly, because they think that the tip is expected and they feel they must do the "usual" thing.

The tip is often an embarrassment to the giver in that he may be uncertain as to the amount he should give, and to the recipient in that there is implied, in the taking, a certain inferiority of status.

The attitude of the tipping public is well expressed in an editorial from Collier's Weekly, reproduced in the September, 1927, issue of the Messenger, as follows:

One of our best and most permanent evils is tipping. Reformers are always conducting a campaign against it. These campaigns get nowhere because they attack the practice from the wrong end. The average man tips waiters, barbers, porters, and others because he likes to pay his way and knows that in certain kinds of service custom orders a tip and employers reduce wages by the amount of the tips. * * *

Tipping itself is an offense to the code of American business ethics. It belongs in countries where begging is a recognized life calling, where petty bribery of government employees is a recognized channel of revenue, where class distinctions are sharp and oppressive, and where cultivated servility is an art. But the custom is rooted in the United States and it will grow and thrive until the great army of the tipped rises in rebellion and creates and demands a right to straight pay.

Since the subject is now before the public it is of interest to see what action the unions concerned have taken or are considering on the subject.

Teamsters, Chauffeurs, etc.

THE official policy of the International Brotherhood of Teamsters, Chauffeurs, Stablemen, and Helpers of America is that of opposition to the tipping system on the ground that acceptance of tips places the recipient in the position of a menial. The union takes the position that "the best cure for it is to raise wages." In the August, 1927, issue of the union's official magazine, Daniel J. Tobin, president of the union, makes the following statement:

One of the substantial things accomplished by our organization since its formation is that of discouraging the custom of tipping. The only branch of our craft in which tipping prevailed was amongst the carriage and hack drivers, of old, and this has been somewhat inherited by the taxicab drivers. This custom, however, is gradually being eliminated amongst union men due to the fact that our union has raised the standard of wages and brought up this class of workers to real high-grade, independent individuals.

Hotel and Restaurant Employees

WAITERS and waitresses notoriously suffer from low wages, it being expected that these will be supplemented by gratuities from the customers. The bad effect upon both workers and union is seriously recognized by the president of the Hotel and Restaurant Employees' International Alliance and Bartenders' International League of America. In his monthly letter to the membership, dated April 25, 1927, Mr. Flore discusses the various factors upon which the union must lay stress. Conditions of employment are among the most important, including the eight-hour day, and a living basic wage. He emphasizes the fact that "the time must come when the workers in the catering industry must reach the higher standards in life—the elimination of gratuities and the establishment of a basic wage."

Too long has the employer depended upon the consumer to pay for the service rendered, and the consumer, realizing that responsibility, is rapidly drifting from the service establishments to those of the nonservice type in order to avoid that responsibility. And the moral of that is that both employer and employee suffer from the loss of that trade. We are living in an age of transition and progress. The catering industry is passing through a period of evolution. Service establishments are rapidly giving way to other types of food emporiums where more or less unskilled service is required and no gratuities called for. In connec-

tion with this type of institutions commissary kitchens are established and prepared and cooked food is delivered in thermos utensils ready for consumption. This method of operation reduces the number of skilled mechanics required in the preparation and cooking of food to a minimum, lessens the overhead cost, and makes their operation serious competitors to the service establishments. In this transformation service employer and employee have a community interest. We, on our part, assume the task of bringing the public back to the thought of former methods and environments, while the employer must assume the responsibility of paying his employee a wage worthy of his hire, with hours and conditions of employment which encourage his activity, and that brings us down to the question of salesmanship and wastes.¹

The July 30, 1927, issue of *Labor*, the organ of the railroad brotherhoods, reports the attitude of the New York City local of waiters and waitresses as revealed in the testimony of its secretary-treasurer who is also vice president of the national union. He is reported as saying:

The union has made several attempts to get a living wage for its members, but has failed. They are compelled to depend on the charity of the public. We are opposed to tipping, but there is nothing else to be done until a living wage is guaranteed employees of restaurants and hotels.

Pullman Porters

THE Brotherhood of Sleeping Car Porters is a comparatively new organization, having been formed during the summer of 1925. Although it claims as members nearly 7,000 of the 12,000 colored maids and porters employed by the Pullman Co., it has had an uphill struggle for recognition as the representative of the employees.

Late in 1926 the brotherhood, acting under the terms of the railroad labor act of 1926, requested a conference with the company for the purpose of discussing certain desired improvements in conditions. The request being denied, the brotherhood took its case before the United States Mediation Board. The main question in the dispute—that of the right of the brotherhood to represent the employees—is now before the board for determination.²

One of the main demands of the brotherhood is that the tipping practice be abolished. The union points out that the minimum wage rate of porters is \$72.50 per month. Overtime is received after 11,000 miles have been traveled, such pay raising the average monthly compensation received from the company to \$78.11. This was disclosed by returns on a questionnaire from 673 regular and 104 extra porters. The tips averaged \$58.15 per month. The union is making a stand for a minimum rate of \$150 a month and the abolition of the tipping system.³

The brotherhood has even filed a complaint with the Interstate Commerce Commission asking that the commission require the Pullman Co. to cease "informing and instructing applicants for positions as porters that they may expect increment to their wages from passengers, and from inducing or permitting porters in its service to receive gratuities from passengers, and from continuing to fix its wage rates for porters at an amount insufficient to enable them to remain in the service * * *"⁴

In the words of one of the brotherhood's organizers: "In their struggle to organize, the porters and maids have set their faces

¹The Mixer and Server (Cincinnati), May 15, 1927, p. 7.

²The Messenger (New York), August, 1927, p. 284.

³Idem, May, 1927, pp. 164-166.

⁴United States Daily, Washington, Sept. 19, 1927.

resolutely against the 'tipping system' as a method of rewarding them for the many excellent services they render the traveling public. This phase of the campaign * * * marks the porter's struggle as the most significant effort of the Negro since his emancipation. He has come to understand that a firm and balanced manhood is incompatible with a dependence on public gratuities; that tips carry with them a haunting and horrible sense of insecurity, to say nothing of the lack of dignity. Tips for the Negro as a reward for his labor bring back to the dim corners of his memory years of sorrow and bitterness spent in slavery; and they also tend to keep alive the fog of prejudice and ill feeling."⁵

Barbers

THE desirability of tipping is being thrashed out in the Journeymen Barbers' International Union. The question was precipitated by the action of the employers' organization, the Associated Master Barbers, in its convention held in November, 1926. That convention passed the following resolution:

Whereas the acceptance of gratuities, known as the tipping habit, is prevalent among master and journeymen barbers throughout the country; and

Whereas we believe that the practice has lowered the esteem of the public for the profession, has made uniform shop service almost impossible to the great detriment of the public, has tended to disrupt the morale of the shop employee and has prevented more general barber patronage to the inestimable financial loss of the profession; Therefore, be it

Resolved, That we, the delegates to the Associated Master Barbers of America, in convention assembled at Des Moines, Iowa, November 8, 9, 10, hereby go on record as being emphatically opposed to the acceptance of gratuities by master and journeymen barbers; and be it further

Resolved, That we earnestly recommend to the affiliated locals of this national association that they respectively enact local legislation forbidding their members to accept gratuities and providing for the enforcement of this measure; and be it further

Resolved, That we hereby request the official and active cooperation of the Journeymen Barbers' International Union of America in the abolishment of the vicious "tipping" habit and urge upon them that they forbid their members to accept gratuities in shops where the master barber will cooperate to this end; be it further

Resolved, That a copy of this resolution be forwarded by the national secretary to every affiliated local of the Associated Master Barbers of America and to the office of the Journeymen Barbers' International Union of America at Indianapolis, Indiana.⁶

Since the publication of the resolution in the official journal of the union the matter has been discussed pro and con, the correspondents being about equally divided in the matter. The president of the union, however, has unequivocally expressed himself in opposition to the tipping practice, stating that, in his opinion, "there is no honest man who dare deny the tipping system is a bad one." He opposes the practice because it breeds servility on the part of the recipient, because it lowers his standing, and because it does not create an incentive for a fair wage.⁷

As already stated, much discussion is taking place in the columns of the union magazine, and the matter will doubtless come up for attention at the 1927 convention of the union.

⁵ Locomotive Engineers' Magazine, April, 1927, p. 260.

⁶ The Journeyman Barber (Indianapolis, Ind.), February, 1927, p. 14.

⁷ Idem, issues of November, 1926 (p. 448), and January, 1927 (p. 555).

Results of Arbitration Proceedings under Railroad Labor Act of 1926¹

UNDER the terms of the railroad labor act of 1926 a board of mediation of five members was appointed. This board began operation in July, 1926.

The act provides means for both mediation and arbitration of labor disputes. Disputes between carriers and men upon which the parties are unable to reach an agreement may be submitted for mediation to the United States Board of Mediation. If mediation fails, a special board of arbitration may be set up, consisting of one or two representatives each of men and management, and one or two "neutral" arbitrators agreed upon by the other representatives. If the parties fail to agree upon the neutral arbitrator or arbitrators these may be appointed by the board of mediation. The parties bind themselves to accept the decision of the arbitrators.

Up to September 1, 1927, many arbitration proceedings had been entered into under the new act, involving blacksmiths, clerks, conductors and trainmen, firemen and enginemen, maintenance-of-way employees, telegraphers, train dispatchers, etc.

In the main, the men have been successful in obtaining increases in wages, though usually these were not so large as were asked for. The smallest rate of increase granted was given in the case of the maintenance-of-way employees on the two railroads—the Louisville & Nashville and the Chicago & North Western—for which the trackmen's cases have been decided. The increases in these two cases ranged from one-half cent to 3 cents per hour, or from \$1.04 to \$6.24 per month.

The outstanding case in which an upward adjustment of wage rates was denied was that of the conductors and trainmen on some 55 western railroads. This action on the part of the arbitration board came as a surprise, especially since these classes of employees on the railroads of the East and Southeast had just been granted an increase of 7½ per cent.

Railway Clerks, Freight Handlers, and Station Employees

THE first arbitration case handled under the new act was that involving the rates of pay of railroad clerks on the Nashville, Chattanooga & St. Louis Railway. The award, made October 29, 1926, increased the combined compensation of the whole group of employees involved by \$125 a day, or \$3,250 per month, divided among the clerks in proportion to the salary being received at the time the award was made.

A case, involving 65,000 employees of the American Express Co., which was carried over from the old Railroad Labor Board, was referred to arbitrators soon after the creation of the United States Board of Mediation. The men asked for increases of from 11½ to 12 cents per hour. By the decision of the arbitrators on January 13, 1927, an increase of 2½ cents per hour was granted.

Wages of the employees of the New York Central Railroad Co. and the Grand Central Terminal were increased 6 per cent, or about

¹ Data are from text of agreements of boards and from Labor (organ of the railroad brotherhoods), issues of Apr. 2 to Sept. 24, 1927.

3 cents an hour, by an arbitration decision rendered March 26, 1927. Exactly one month later station employees of the Boston & Maine Railroad were granted increases amounting to about $5\frac{1}{2}$ per cent.

Increases of pay ranging from 2 to 7 cents per hour were granted to nearly 10,000 employees of the Southern Pacific Railroad Co. by a decision given at the end of April. The award was made retroactive to January 1, 1927. The employees covered by the award included clerical employees, freight, baggage, and mail handlers, train and engine crew callers, elevator operators, watchmen, perishables inspectors, and others.

Negotiations for a wage increase which terminated in an arbitration decision rendered July 16, 1927, were begun between the Brotherhood of Railway Clerks and the Southern Railway Co. in August, 1925. The dispute was ready for hearing when the Railroad Labor Board was abolished, necessitating beginning the negotiations anew, under the 1926 act. The men and the carrier being unable to come to an agreement, and the efforts of the United States Mediation Board being equally unsuccessful, the matter was referred to a board of arbitration. The award of this board granted an increase of $2\frac{1}{2}$ cents an hour to some 6,000 employees, effective July 16, 1927. The brotherhood had asked for a flat increase of 6 cents per hour.

About 9,700 employees of the Illinois Central Railroad Co., by an arbitration decision rendered August 24, were granted a 5 per cent increase in the rates of pay. This amounted to a fraction less than 3 cents an hour for clerks and 2.4 cents an hour for freight handlers.

About the same time the employees of the Wabash Railway Co. were granted increases— $3\frac{1}{2}$ cents per hour for clerks, 2 cents per hour for station employees and chore boys, $2\frac{1}{2}$ cents per hour for freight handlers, and 3 cents per hour for sealers, scalers, and fruit inspectors. Stowers, stevedores, and callers were given a rate 4 cents per hour above that of freight handlers.

The demand of some 7,500 clerks on the Chicago & North Western Railway for an increase of 15 cents an hour will be heard before an arbitration board.

Conductors and Trainmen

THE first wage movement of the railway conductors and trainmen under the new act began with the filing of claims for wage increases of \$1 to \$1.50 per day on the eastern railroads. The parties failing to reach a settlement, the matter was taken to arbitration and the award of the board was rendered December 1, 1926, making a general $7\frac{1}{2}$ per cent increase in wage rates. The same increase was subsequently agreed to by the Southeastern railroads.

The Order of Railway Conductors and the Brotherhood of Railway Trainmen then attempted to obtain similar benefits for their members who were employed on 55 western railroads. Approximately 70,000 workers were affected by arbitration proceedings brought in the western district, and this number did not include employees of the Chicago & Alton Railroad Co., which was not a party to the agreement, but which agreed to abide by the decision of the arbitrators. The award of the arbitration board, however, denied any increase in rates of pay of the conductors and trainmen, but granted a $7\frac{1}{2}$ per cent increase to yardmen.

Firemen and Enginemen

THE $7\frac{1}{2}$ per cent increase awarded to the conductors and trainmen on the eastern railroads was extended by agreement, without resorting to arbitration, to the firemen and enginemen on those roads. The Brotherhood of Locomotive Enginemen and Firemen then sought to obtain an increase for those of its members who were employed on the southeastern railroads. It was unable to persuade the officials of those carriers to make the increase, and an arbitration agreement was therefore signed early in April, 1927, by the Brotherhood and 12 southeastern railroads. It was reported at that time that the arbitrators' decision would affect directly some 7,500 workers, and probably at least 6,000 more indirectly, it being "taken for granted that eventually the decision of the board will be accepted by those lines which are not involved in the arbitration proceedings." The men asked for increases in wages amounting to \$1 per day for men working on engines of less than 250,000 pounds on the drivers and \$1.25 for those on engines of over that weight. The board rendered its decision June 20, giving increases of 35 cents a day for men in passenger and yard service and 40 cents a day for men in freight service; this, it was estimated, amounted to an increase of about 7 per cent in the existing rates.

The employees of 12 carriers were affected by the increase. The Southern Railway Co., the Seaboard Air Line Railway Co., and several other railroads of the territory were not parties to the arbitration. Practically the same increases were obtained for 3,500 employees of the Southern Railway Co., however, by an agreement reached between the men and the company early in July. Simultaneously demand was made upon the western railroads. Negotiations failed, as did also the efforts of a Federal mediator, and an agreement to arbitrate was reached early in August. No award has as yet been made in the case.

Locomotive Engineers

WAGE negotiations on the eastern railroads began May 23, 1927, the union asking for an increase of 15 per cent for its 30,000 members employed by these roads. Action was postponed, however, until after the close of the convention of the Brotherhood of Locomotive Engineers, when negotiations were reopened, July 25. The services of the United States Board of Mediation were requested a few days later, and an agreement was reached by which the men were to receive an increase of $7\frac{1}{2}$ per cent, effective August 1. Thus a $7\frac{1}{2}$ per cent increase has been made on the eastern railroads for conductors and trainmen, firemen and enginemen, and locomotive engineers.

Conferences with the southeastern railroads began August 16, mediation failed, and the parties have agreed to arbitrate. It is understood that after an agreement has been reached wage demands will be made upon the western carriers.

Maintenance-of-way Employees

THE Chicago & North Western Railway Co. and the Brotherhood of Maintenance of Way Employees on March 24, 1927, signed an agreement to arbitrate the wage demands of the men, this being the

first action of the brotherhood under the terms of the act of 1926 involving the employees of an entire railway system. Similar action was taken with the representatives of the Louisville & Nashville Railroad Co., the men asking in both cases for a flat increase of 5 cents an hour. These two actions, it was reported, involved some 24,000 men.

The arbitrators in the case of the Louisville & Nashville Railroad Co. awarded increases ranging from 1 cent to 2 cents per hour. That means an advance of \$2.08 to \$4.16 a month if the men work 8 hours a day for 26 days a month.

In the Chicago & North Western case the award divided the men into 22 classes and granted increases ranging from less than one-half cent to 3 cents per hour in 9 classes; in 10 classes no change of rate was allowed; and for 1 class the minimum hourly rate was reduced from 38 to 35 cents per hour. In one class the monthly rate was abolished and an hourly rate substituted and in another no change of rate was made, but the minimum salary was raised from \$40 to \$55 per month.

The wage controversy of the brotherhood with the Chicago, St. Paul, Minneapolis & Omaha Railway Co. has been referred to an arbitration board.

Signalmen

A DEMAND upon the Baltimore & Ohio Railroad Co. that its signalmen be paid the current rate of 78 cents per hour was resisted by the carrier, mediation was unsuccessful, and it was then decided that the matter should be submitted to arbitration. Renewal of direct negotiations, however, led to an agreement by which the road will pay the current rate. The same rate was also obtained by agreement on the Central Railroad Co. of New Jersey.

The request of the signalmen for an increase of 11 cents an hour on the Louisville & Nashville Railroad Co. will be heard by a board of arbitration in the near future.

Telegraphers

THE first action of the Order of Railroad Telegraphers under the act of 1926 was taken to secure an adjustment of wages, amounting to about 8 cents per hour, for some 1,400 of its members employed on the Northern Pacific Railway Co. Arbitration proceedings began March 25, 1927. This was another case which had originally been inaugurated in 1925, but in which no agreement could be reached. The arbitrators' decision, handed down during the latter part of April, granted an increase of 3 cents per hour.

A dispute involving both rules and wages of telegraphers of the Grand Central Terminal has been submitted to arbitration.

Train Dispatchers

WAGE demands of the Train Dispatchers' Association upon the Mobile & Ohio Railroad Co. were submitted to an arbitration board early in April, 1927, and its demands upon the Louisville & Nashville Railroad Co. went to arbitration about the middle of May. A decision rendered late in September gave the dispatchers on the latter road an increase of 58 cents a day.

Cases Settled by Agreement and by Mediation

THE above discussion has in general covered only cases in which, it having been found impossible for the parties to agree either by themselves or with the good offices of a third person, the settlement of the matter was left to arbitrators selected by the parties involved. In addition, however, many cases have occurred in which an amicable settlement has been reached between men and management. Thus, the Soo Line and its telegraphers were able to settle a wage dispute, the telegraphers obtaining an increase in the rate per hour of about 3 cents. In like manner, the Baltimore & Ohio Railroad Co. agreed to an increase of 5 per cent for its clerks, and the New York, New Haven & Hartford Railroad to a general increase for its clerks. As already noted, the southeastern railroads granted to their conductors and trainmen the 7½ per cent increase awarded by an arbitration board to employees of this class on railroads of the East, while the Southern Railway Co. agreed to extend to its firemen and engineers practically the same increase obtained by arbitration on the other southeastern carriers. After a sharp dispute, telegraphers on the Chicago, Burlington & Quincy Railroad Co. obtained an agreement from the company by which these employees were granted an increase of 2½ cents per hour.

Mediation by the United States Mediation Board has resulted in settlements in many other cases, such, for instance, as the 3 per cent increase obtained by the telegraph and tower service employees of the Southern Pacific Railroad Co., the increase ranging from 2 to 7½ cents per hour obtained by railway clerks on the Maine Central Railroad and of 2½ cents per hour on the Central Vermont Railway Co., the 7 per cent increase secured by the engineers on eastern railroads, a slight increase for certain classes of maintenance-of-way employees of the Southern Pacific Railroad Co., and many others concerning which details are not available.

It was reported that of 289 cases submitted to the United States Mediation Board up to September 17, a settlement had been brought about in 145.

Labor Legislation in Uruguay

By PERCY A. MARTIN, professor of history in Stanford University, California, and EARL M. SMITH, director of the Instituto Pan Americano of Montevideo, Uruguay

TO THE student of social progress as reflected in labor legislation no Latin-American country offers a more promising field for investigation than Uruguay. Though this little Republic, created in 1828 as a buffer State between Argentina and Brazil, has not escaped the cycle of revolutions, dictatorships, and political convulsions to which all of our neighbors south of the Rio Grande have at one time or another fallen heir, the advent of the twentieth century witnessed the dawn of a new era. To a greater extent, possibly, than any of the other South American States Uruguay has succeeded in squaring the theory with the practice of democracy. To be sure, conditions have been singularly propitious. Nature has been lavish in her gifts to Uruguay. Though in area only as large as New England with the addition of Maryland,¹ over 85 per cent of Uruguay's surface is admirably adapted for agriculture or stock raising. The country lies entirely in the South Temperate Zone. The climate is healthful and invigorating. The population,² almost entirely of white extraction, is industrious and intelligent. A progressive government has by means of an excellent school system done much to banish illiteracy. Finally, the political party which for years has been in power (the so-called Colorado) has inscribed on its platform a long series of social and economic reforms, many of which have in recent years been written on the statute books. In fact, one may regard this little South American State as a vast social laboratory in which experiments of interest not only to Uruguay but to the world at large have taken place.

Labor Legislation

THE first important piece of legislation to demand notice is the law of July 21, 1914, for the prevention of accidents. Industrial establishments, construction companies, railroads, mines, quarries, and a long list of other industries are obliged to take effective measures to safeguard their employees from accident. The law has been amplified and rendered enforceable by means of executive decrees which specify in great detail the type of safeguards to be established in each industry or group of industries. Provision is also made for government inspection of machinery, installation of safety appliances, and isolation of dangerous machinery. Each infraction of the law is punished by a fine of 50 pesos.³

Despite the fact that many of the minute regulations of this law are only imperfectly carried out there has been an encouraging decrease in industrial accidents. At the beginning of 1925 there were 55,500 persons employed in industries, according to the statistics supplied by Dr. César Charlone, director of the National Labor

¹ Uruguay contains 71,153 square miles.

² In 1924 the population amounted to 1,640,214.

³ República Oriental del Uruguay. Legislación obrera del Uruguay. Año I, No. 1 (Montevideo, 1921), pp. 27 et seq. The Uruguayan peso, which is divided into 100 centésimos, is worth slightly more than the American dollar.

Bureau.⁴ During the first six months of 1925 there were in Uruguay 3,095 reported industrial accidents. These included 6 cases of death, 1 of permanent total disability, 13 of partial disability, 2,957 of temporary disability; in the remaining 118 cases no data are available. An examination of the machinery in the larger industrial establishments in Montevideo, especially the great packing houses, reveals fully as many and as efficient safety devices as are to be found in corresponding plants in the United States. On the other hand, the introduction of labor-saving devices has proceeded rather slowly. A great deal of carrying is done. Gangs of stevedores still load and unload ships. Bricks, instead of being elevated by power, are thrown or carried. Dirt and debris are removed by baskets. Comparatively few hand trucks and freight elevators are used.

Workmen's compensation law.—Another landmark in labor legislation closely allied to the accident prevention law is the law of November 26, 1920, providing for compensation for industrial accidents.⁵ The law is most comprehensive; not only does it refer to factories in general but 218 industries are specifically mentioned. The law provides for compensation to the workmen as follows:

(a) For temporary disability lasting more than 7 days, half pay, beginning the eighth day after the accident. If the incapacity lasts longer than 30 days the compensation begins with the day following the accident.

(b) For permanent total disability, two-thirds of the wages for life.

(c) For permanent partial disability, a life annuity equal to one-half the reduction in wages due to the disability. If the reduction is less than 10 per cent no annuity is granted.

(d) For death by accident, the following annuities for the dependents: For wife (until married again), or disabled husband, 20 per cent of the annual wages of the deceased; in case of mother or father living, minor children and dependent minors living in deceased's home, 15 per cent for one, 25 per cent for two, 35 per cent for three, and 40 per cent for four or more, and in case neither mother nor father is living, 20 per cent for each child.

At first sight this law would seem to contain extraordinarily liberal provisions for the workmen. In reality, however, its scope is severely limited by a clause that in cases in which the wage of the victim is more than 750 pesos per year this sum, and not his actual wages, will be taken as the basis for calculating the indemnity. It is obvious that this provision adversely affects the compensation of all well-paid laborers. For instance, 500 pesos becomes the maximum disability compensation.

It is generally agreed that the workmen's compensation law should have as its logical corollary compulsory insurance. In Uruguay except in the case of public employees there is no legislation forcing industries existing when the law was passed to carry insurance for their workmen. In practice, however, almost all of the more important industries carry such insurance with the State Insurance Bank (*Banco de Seguros del Estado*). The premiums are not excessive and the industry is relieved of all risk as well as of the task of caring for the victims of accidents. The expenses incurred by the employees

⁴ El Libro del Centenario Uruguayo (Montevideo, 1926), p. 339: "Legislación Obrera Uruguaya."

⁵ Legislación Obrera del Uruguay, pp. 63 et seq.

are regarded as a legitimate charge on the industry and in most cases are passed on to the public. The insurance bank maintains a regular staff of physicians who render assistance to the employees when accidents arise.

The workmen, like the employers, are, on the whole, satisfied with the operations of the law. Employees pay no direct premiums. They are well attended in case of accidents, and in case of disability, they and their families are not deprived of all resources. The law seems to be well enforced. No license is granted to any new industry coming within the scope of the law until guaranties are given that all workmen will be insured. A lawyer is appointed whose especial duty it is to see that all obligations on the part of the insurance bank are met. The law is sufficiently clear and enforceable to make unnecessary any great amount of litigation. Of the 3,095 industrial accidents noted above as occurring in the first six months of 1925, 2,046 of the victims were granted half-salary compensation, 85 were not insured (but 1 of these was granted compensation by his employer) 9 cases were pending when the report for the period was published, and for 943 no data were available.

*Eight-hour law.*⁶—This important piece of legislation was promulgated on November 17, 1915. The Uruguayans regard this law as one of their most important conquests in the domain of social reform. At first of very wide application, its scope was somewhat restricted by executive decrees, notably those of January 31, 1916, and May 21, 1921. At the present time the following industries and occupations are not subject to its provisions: Agriculture and stock raising, domestic service, chauffeurs of public automobiles, directors and managers of industrial and commercial houses. On the other hand no establishment is too small to escape the provisions of the law; the same is true even of shops in which members of the same family are employed. Eight continuous hours, however, are permitted in certain industries. More than 8 hours are allowed in the case of maritime and port labor, provided that the total does not exceed 48 hours per week. A 15-minute rest after two hours of ironing is obligatory in laundries. The eight-hour law was extended in 1923 to include all employees of hospitals and sanatoriums.

In general the eight-hour law is accepted as the permanent law of the land. No political party seeks its repeal, and there is a movement—thus far of small proportions—to extend it to include domestic help and farm labor. The objection to the law naturally comes from the side of the industrialists, especially the managers of great packing houses. They declare they can not pay a man for 10 hours when he works only 8. Thus they justify a wage of less than a peso and a half per day for seasonal labor. One also hears the complaint that Uruguayan industries are handicapped in the competition with Argentina and Brazil, where the eight-hour law is not operative.

The sponsors of the eight-hour law believed that it would afford opportunity for improving the lot of the laboring classes. In some measure these hopes have been realized. It has been a boon to young men of ambition. The night schools provided by the Government in Montevideo have enabled many employees to fit themselves for more remunerative positions.

⁶ Legislación Obrera del Uruguay, pp. 79 et seq.

The law has been reasonably well enforced. While minor infractions are not infrequent, flagrant disobedience is rare, as inspectors are everywhere present. During the year 1926, 64 establishments or individuals were convicted and fined for breaking the law. That the law is effective in preventing exploitation, especially of the newly arrived and ignorant immigrants, is beyond dispute.

*One day's rest in seven.*⁷—Laws making one rest day each week obligatory were passed November 19 and December 10, 1920. These laws were much more inclusive than the eight-hour law, but rural labor was not included even in these. When one recalls that Uruguay is predominately a pastoral and agricultural country, the comparatively limited application of this legislation is apparent. Through a mass of regulations, adjustments to the special exigencies of practically every type of industry are provided. In general the period of rest falls on Sunday and consists of 24 consecutive hours. When this is not practicable another day of the week may be substituted for Sunday. When the industry in question must function continually one day of rest is required after 5 days of work. It is obvious, however, that employers are loath to adopt this latter provision, and in 1924 less than 9 per cent of the laborers fell in this category. In certain cases it is permitted to give two half days off instead of one whole day, or a half day may be given every Sunday and some other day every two weeks. Another privilege is the arrangement between employer and employee whereby the rest days may accumulate for a monthly, quarterly, or semiannual vacation.

The following table indicates the manner in which the law was carried out in 1924:⁸

PROVISIONS FOR WEEKLY REST FOR WORKERS IN COMMERCIAL AND INDUSTRIAL ESTABLISHMENTS IN URUGUAY IN 1924

Department	Number of workers in commercial establishments having—			Number of workers in industrial establishments having—		
	Sunday off	Week day off	One day in six off	Sunday off	Week day off	One day in six off
Montevideo	11,493	5,012	2,345	31,452	10,089	2,305
Other departments	4,032	1,501	1,012	9,808	1,404	442
Total	15,530	6,513	3,357	41,260	11,493	2,747

As a result of this law, the six-day week is all but universal in the field of industry, commerce, and domestic service, in the larger communities at least. In small and isolated establishments in the interior of Uruguay difficulties of enforcement occur; but the law is known, the rest day is demanded and is generally accorded. This law is a boon for domestic workers who in most countries in Latin America are subject not only to long hours but also to week-in week-out continuous service. In general, employers have cooperated in carrying out this legislation and no perceptible difference has been made in regard to wages.

⁷ Legislación Obrera del Uruguay, pp. 185 et seq.

⁸ El Libro del Centenario del Uruguay (Montevideo, 1925), p. 339: "Legislación Obrera Uruguaya."

Minimum wage for rural laborers.—The social and labor legislation thus far reviewed has been designed chiefly to improve the lot of the urban laborers and employees; this despite the fact that Uruguay is predominantly a pastoral and rural country. The causes of this anomaly are not far to seek. Thanks to their effective organizations, workmen in the cities can exert an influence in political spheres not enjoyed by the rural laborers, while difficulties of enforcing labor laws in the sparsely settled interior are formidable. Finally, the dominant political party has recruited most of its strength from the inhabitants of Montevideo and the other large towns and as a consequence has been somewhat less concerned with the plight of the laborers on the great estancias.

The first serious attempt to remedy this discrimination was the passage, on February 15, 1923, of the law establishing a minimum wage for rural laborers (*salario mínimo rural*).⁹ The minimum wage set is 18 pesos per month, or 72 centésimos per day. The employer is also obliged, at the option of the laborer, either to provide hygienic sleeping quarters and good food or pay an additional 50 centésimos per day or 12 pesos per month. Furthermore, one day's rest in seven is obligatory.¹⁰ The law applies to rural properties with an assessed valuation of more than 20,000 pesos. In the case of properties of more than 60,000 pesos assessed value the minimum wage was increased by an executive decree of April 8, 1924,¹¹ to 80 centésimos per day, or 20 pesos per month.

An additional executive decree provides for the issuance by the bureau of labor of "booklets of control" (*libretas de contralor*) for the individual laborer. These booklets contain the following data: Name, nationality, age, residence, and civil status of both the laborer and employer; the location and assessed value of the establishment; the date on which the work began, the conditions of contract, amount of wages, provisions for board and room, the day of rest, etc. These reports are kept by the employers and are periodically examined by Government inspectors.

One of the writers had occasion to spend some time on a number of large Uruguayan estancias, and, to the best of his knowledge, the law of minimum wage has proven a distinct success. Rural laborers are cognizant of its terms, the reports are universally kept, inspectors regularly make their rounds, and recalcitrant establishments are forced to live up to the provisions of the law. During 1926, 137 fines were collected for breaking this law. Instances have arisen where employees signed for the legal wage and without protest received less. It is impossible to determine how common is this deceit, but it can not be very general, for the average wage of country laborers has gradually risen to 18 pesos, the legal minimum for the middle-size establishments. Indirectly, therefore, all rural labor has benefitted from the law.

National Bureau of Labor

THE enforcement and regulation of labor laws is in the hands of the National Bureau of Labor (*Oficina Nacional del Trabajo*) under the general direction of the Minister of Industries. Only the

⁹ Jiménez de Aréchaga: *Leyes, Decretos y Resoluciones Usuales*. Montevideo, 1926, pp. 575 et seq.

¹⁰ This provision applies to all rural properties, irrespective of size.

¹¹ Jiménez de Aréchaga: *Leyes, Decretos y Resoluciones Usuales*. Montevideo, 1926, p. 578.

most important of the activities of the bureau can be noted here. Inspectors see that the provisions of the eight-hour and minimum-wage laws are carried out, and a lawyer of the bureau sees to it that employees receive their accident compensation. All licenses to new industries must be countersigned by the bureau. Inspectors see that every establishment has its one day of weekly rest for every employee. To assure more adequate enforcement of the existing labor laws in 1923, two subdivisions of the bureau were established in the interior of the country. For the fiscal year 1924-25 the expenses of the bureau amounted to approximately 15,000 pesos.¹²

Other activities of the bureau of labor include the maintenance of a free employment agency;¹³ the publication of a monthly bulletin, the *Crónica de la Oficina Nacional del Trabajo*;¹⁴ the investigation of labor conditions both at home and abroad; and the drafting of legislative proposals. The bureau has also attempted to act as mediator in industrial disputes, but with very meager success. This failure is due in large part to the fact that the labor movement, in so far as it is organized, is largely of the radical syndicalist type and reposes no confidence in the bureau of labor, which it considers as an organ of capitalism.

Woman and Child Labor

AT THE present time only one measure dealing with the subject of woman and child labor is on the statute books. This is the so-called "chair law" (*ley de la silla*),¹⁵ passed on July 10, 1918. The law makes obligatory in all stores, factories, and other establishments the installation of chairs in sufficient number to permit all woman employees to sit when not engaged in work requiring a standing position. According to the director of the bureau of labor, the law is in force and obeyed. Investigation revealed that in stores, at least, chairs are available. In the industrial establishments, however, adequate provision does not seem to be made for women whose work generally calls for a standing position.

Pending the enactment of further legislation the bureau of labor attempts to throw certain safeguards about women and children in industry. Two woman inspectors devote their whole time to this task. They see that the "chair law" is enforced, intercede in any difficulty between woman workers and their employers, and endeavor to protect women and children from immoral and unsanitary conditions of work.

There is a widespread conviction in Uruguay that the virtual absence of laws looking to the protection of women and children in industry forms a serious gap in the country's social legislation. According to the present Minister of Industries, Doctor Acevedo Alvarez,¹⁶ there are 9,571 women employed in industry. Statistics regarding the number of children gainfully employed are not available, but the total must be impressive if the figures given by Doctor Acevedo for a single establishment are at all typical. In the largest glass factory

¹² República Oriental del Uruguay. Presupuesto General de Gastos para el Ejercicio Económico de 1924-25, Pt. I, p. 282.

¹³ In 1925, 1,128 positions were secured through its efforts.

¹⁴ This publication, begun in 1925, was later forced to suspend owing to lack of funds.

¹⁵ Jiménez de Aréchaga: *Leyes, Decretos y Resoluciones Usuales*. Montevideo, 1926, p. 539.

¹⁶ *El Día*, Apr. 1, 1927.

of Montevideo, for instance, some 50 per cent of the 476 employees are less than 18 years of age, while 29 are between 10 and 14 and 36 between 14 and 15. The same authority points out that children employed in industrial establishments are accustomed to labor the regulation eight hours, irrespective of their age.

To meet this admittedly deplorable situation there has been introduced into the Uruguayan Congress, partly through the efforts of the bureau of labor, a comprehensive bill dealing with the labor of women and children. Its outstanding provisions are as follows—

Prohibition of any kind of gainful employment in the case of children under 15 years of age.

A maximum of four hours of work per day for boys and girls under 18 years and of six hours for those under 21.

Absolute prohibition of night work in factories, shops, or stores for women and for boys under 18 years of age.

Children under 18 can not be employed in factories or shops until they have completed the sixth grade in school and have passed a physical examination—given free by the public health department—showing them to be fit for the work. They can not be employed in occupations detrimental to health or morals.

Women are to be granted 12 weeks' vacation on two-thirds pay at time of childbirth.

Factories and shops employing women must have a day nursery attached.¹⁷

Old-age Pensions

ONE topic closely allied to but lying slightly outside the field of labor legislation is that of pensions. For many years public employees of almost every category have been eligible to pensions and retirement allowances. The Government has been extraordinarily liberal in this respect. In the fiscal year 1924–25 nearly 2,000,000 pesos were expended for these purposes, of which amount considerably over half went to civilians and the remainder to members of the military and their families.¹⁸ Our interest, however, lies in a pension of an entirely different type. On February 11, 1919, was passed the law providing for old-age pensions.¹⁹ Every person who, on arriving at the age of 60, is incapable of work and is indigent is entitled to a minimum yearly pension from the State of 96 pesos or its equivalent in direct or indirect aid. This amount is not absolute but is determined in part by the National Insurance Bank, which administers the pensions. On October 11, 1926, the directors of the bank raised the sum to 9 pesos per month for the calendar year 1927.²⁰ On August 31, 1924, the recipients of this pension numbered to 24,336, entailing an expenditure for the first half of the calendar year 1924 of slightly over 1,000,000 pesos.²¹ The revenues for the pension fund are derived from several sources, of which the most important are the contributions of 20 centésimos monthly payable by employers for each of their employees and a graduated surtax on all real estate whose value is not less than 200,000 pesos. Opinion among social

¹⁷ El Día, Mar. 21, 1927, where the chief provisions of the law are analyzed.

¹⁸ República Oriental del Uruguay. Presupuesto General de Gastos para el Ejercicio Económico de 1924–25, Pt. I, pp. 335 et seq.

¹⁹ Jiménez de Aréchaga: *Leyes, Decretos y Resoluciones Usuales*. Montevideo, 1926, pp. 541 et seq.

²⁰ El Día, Oct. 12, 1926.

²¹ El Libro del Centenario. Montevideo, 1926, p. 337.

workers in Uruguay is practically unanimous regarding the benefits of the old-age pension law, and there is every likelihood that the amounts paid will, as time goes on, show a substantial increase.

Conclusion

OUR brief survey of the existing labor legislation of Uruguay should warrant the statement that this progressive South American State need not fear comparison in the domain of social welfare with the United States and the more advanced nations of Europe. Not merely has a fairly complete and coherent system of laws been written on the statute books, but the laws are enforced with honesty and intelligence. That serious gaps still exist is admitted by all progressive Uruguayans. The most serious omission, as has already been indicated, is adequate protection for children and women in industry. There has also been a tendency to further the interests of the urban laborer and to neglect his fellow worker in the country. Finally, there is a real need for a comprehensive labor code. Such an instrument would correct the defects of the present legislation, fill the existing gaps, and coordinate the various stipulations scattered through the Civil Code relative to labor contracts. It is encouraging to note that the director of the labor bureau, Doctor Charlone, in collaboration with Sr. César Mayo Gutiérrez, former Minister of Industries, has prepared such a labor code and that it will shortly be submitted to Congress for approval.²²

²² The chief provisions of this draft are given in *El Día* for Apr. 16, 1927.

INDUSTRIAL RELATIONS AND LABOR CONDITIONS

English Trades Disputes and Trades-Union Act.

ON JULY 29, 1927, the English act relating to trade-unions and trade disputes, having passed both houses of Parliament, received the royal assent and became law. The original terms of the bill were given in the Labor Review for May, 1927 (pp. 122-124), but a number of amendments were made before the act was passed. The Ministry of Labor Gazette (London) for August, 1927, gives a summary of the amended provisions of the new law.

A strike is declared illegal if it (1) has any object other than or in addition to the furtherance of a trade dispute within the trade or industry in which the strikers are engaged; and (2) is a strike designed or calculated to coerce the Government either directly or by inflicting hardship upon the community. Illegal lockouts are defined in similar terms, and it is declared illegal to commence or continue, or to apply any sums in furtherance or in support of, any such illegal strike or lockout.

A trade dispute is not to be deemed to be within a trade or industry unless it is a dispute between employers and workmen, or between workmen and workmen, in that trade or industry which is connected with the employment or nonemployment, or the terms of the employment, or with the conditions of labor of persons in that trade or industry. Without prejudice to the generality of the expression "trade or industry," workmen are to be deemed to be within the same trade or industry if their wages or conditions of employment are determined in accordance with the conclusions of the same joint industrial council, conciliation board, or other similar body, or in accordance with agreements made with the same employer or group of employers.

Penalties are provided for any violation of this provision, and the protection formerly extended to trade-unions by the trade disputes act of 1906, and continued under the emergency powers act of 1920, are withdrawn; "but no person is to be deemed to have committed an offense under any regulations made under the emergency powers act, 1920, by reason only of his having ceased work or having refused to continue to work or to accept employment."

The second section provides that no trade-union shall have the right to expel or otherwise to discipline any member who shall refuse to take part or to continue to take part in any illegal strike, nor shall such a member "be placed in any respect either directly or indirectly under any disability or at any disadvantage as compared with other members of the union or society." This is made retrospective so as to include the strike of May, 1926.

The third section forbids picketing, if it includes intimidation, and intimidation is defined in such terms as to make picketing of any kind an impossibility under the law.

The fourth section changes the custom in regard to political contributions from trade-union members. Hitherto, it has been the practice for trade-unions to levy these contributions on all members

unless they give notice in writing that they do not wish to contribute for this purpose. Hereafter such contributions may be levied only on those who give notice in writing that they wish to contribute for this purpose.

The fifth section forbids civil-service employees to affiliate with any trade-union organization including other than public employees. Under this section the unions of civil-service employees are obliged to withdraw from bodies such as the Trade Union Congress.

The sixth section forbids any local authority to make membership or nonmembership in a trade-union a condition of employment. It is also unlawful to make membership or nonmembership in a trade-union a condition of any contract with a local or other public authority.

The seventh section empowers the Attorney General to apply for an injunction to restrain any application of the funds of a trade-union in contravention of the act.

Section 8 defines a "strike," for the purposes of this act, as meaning the cessation of work by a body of persons employed in any trade or industry acting in combination, or a concerted refusal, or a refusal under a common understanding, of any number of persons who are, or have been, so employed, to continue to work or to accept employment. "Lockout" is defined as meaning the closing of a place of employment or the suspension of work, or the refusal by an employer to continue to employ any number of persons employed by him in consequence of a dispute, done with a view to compelling those persons, or to aid another employer in compelling persons employed by him, to accept terms or conditions of or affecting employment. A strike or lockout is not to be deemed to be calculated to coerce the Government unless such coercion ought reasonably to be expected as a consequence thereof.

The "Exit" Interview

THE practice of conducting interviews with employees who are leaving the service of a company is discussed in a leaflet entitled "The exit interview," published recently by the Policy-holders Service Bureau of the Metropolitan Life Insurance Co., the study being based on the experience of 60 companies.

Practically all of the companies conducting these exit interviews are said to indorse the idea, and the data obtained indicate that such interviews are practical from the standpoint of time, cost, and results. When an employee leaves with a grievance he is a company liability just as much as a dissatisfied customer, and his grievance may be one that affects the morale of the organization. Not only does the exit interview afford a chance to learn the reasons for the employee's seeking work elsewhere, but useful information may also be obtained regarding undesirable working conditions, foremen's attitudes, and so on, and the employee may be given pertinent information about the policies of the company, as well as the opportunities it offers and ways of taking advantage of them. The interview may also show the reaction of certain types of employees to certain jobs, which helps the company in determining the types of individuals suitable for different kinds of work.

Most companies having 5,000 or more employees assign the duty of conducting exit interviews to the regular employment interviewers or to the employment manager or his assistant. In plants employing

between 200 and 5,000 the practice was found to be somewhat different. In five-sixths of these plants the matter was handled by the official corresponding to the employment manager or his chief assistant; in the remaining one-sixth, by the foreman, paymaster, employment clerk, interviewer, or nurse. In the majority of instances the interviewer has authority to take action, but in unusual cases he reports the matter to his superior.

Although it is pointed out that the questions asked in the exit interview may naturally be expected to vary with the individual case, the following were found to be typical of those asked:

1. What's the trouble?
2. What's the matter, John, taking a rest?
3. Is it a matter of money?
4. Didn't you like your job?
5. How did you get along with your foreman?
6. How did you like the other employees in your department?
7. Are you leaving with a clear understanding of the advantages of your present job?
8. Have you any remarks or complaints to make regarding working conditions or treatment while on the job?
9. What incentive does your new place of employment offer?
10. Have you considered the expense of moving, etc.?
11. Are you improving yourself by leaving?
12. Why do you think you will advance more quickly in another organization?
13. Would you like to work for the same foreman again if you came back to us?
14. What can you tell us that will better the service or be a good thing for our employees?
15. How long have you considered leaving?
16. Do you care to transfer to another department?
17. Don't you like this town?
18. Has your address changed since you entered our employ?
19. Have you another job?
20. Can we help you get other work?

The time and cost of these interviews will, of course, also vary in the different cases. It was estimated by one large company that the time taken in interviewing 4,600 discharged, laid off, and quitting employees during the first 11 months of 1926 averaged one hour a day of two men's time, or an average of about six and three-fourths minutes to a case, with an interviewer's salary cost of 10 cents a case. Of these 4,600 employees, 195, or 4.2 per cent, remained in the company's employment as a result of the interview.

Employment Procedure and Industrial Housing Work of European Street-Railway Companies

EMPLOYMENT methods in use by European street-railway companies are more elaborate than those of American companies, according to an article in the *Electric Railway Journal*.¹

Applicants for employment must present the usual testimonials as to character and pass the standard physical and intelligence tests. But in addition an increasingly large number of companies are also subjecting prospective employees to psychological tests to determine their fitness for the job. Men already in the service may also be

¹ *Electric Railway Journal*, New York, Aug. 27, 1927, pp. 351-355: "Labor conditions on European local transportation systems," by Henry W. Blake.

required to submit to periodical examinations both as to physical and mental fitness. Thus the electric railway company in Paris requires a more or less rigid physical and psychotechnical examination of its motormen every five years up to the age of 45, every three years from 45 to 54 years of age, and every year thereafter. A similar examination may also be required of any employee who has just had an accident or a severe case of illness.

The records of this company disclose a tendency toward an increase of accidents after the motorman or bus driver reaches the age of 55 to 60 years. It is thought that the tests, by revealing perhaps unsuspected physical and other defects that may be corrected, will act as a check upon accidents. The records of the Paris company show that accidents participated in by 100 motormen employed after the system was put into effect were $16\frac{1}{2}$ per cent fewer than those of 100 men engaged prior to the test system. During 1926 the street-railway and bus accidents declined, although accidents from all other types of vehicles in the city of Paris increased. While this can not altogether be ascribed to the test system the street-railway officials believe that to a large extent the system can be credited with the reduction.

Among the tests given to the motorman or bus driver is that of judging distances. Various objects representing cars and other vehicles moving at different rates of speed are shown on a skeletonized table, and the person taking the test is asked to indicate which of these objects he thinks will collide with any of the others. Some of the men are able to judge so instinctively that they can indicate correctly, almost instantly, while others must wait until the objects have almost come into contact.

Another examination tests the subject's ability to handle a given traffic situation. The man stands on a platform equipped like that of a street car (or if he is to be a bus driver, like that of a bus) while a moving picture is run off showing a crowded street with pedestrians and various types of vehicles crossing before him. The man is expected to make the movements with controller and brake handle that he would if he were really operating the street car or bus.

Similar tests are given by the company operating the street-railway system of Berlin, except that that company also adds a test to determine the man's acuteness of hearing as well as his ability to identify the direction from which the sound comes.

Schools are maintained by many European traction companies in which the mechanism and working of street car or bus are taught. The largest school is that of the London omnibus company which has laid out a series of test roads incorporating all the conditions which the bus driver is likely to meet.

Housing Work of European Street-Railway Companies

NEARLY all companies have provided housing accommodation for at least some of their employees in or near the car house. "This not only cuts down the time required by them to travel between their homes and place of employment, but is of value to the company as it makes them more easily available in cases of emergency." Generally apartments are provided for several families on the second or third floor of the car house itself.

Some companies have undertaken housing projects on ground adjoining the car barns. The most extensive of these housing projects is that of the Berlin surface-line companies which has erected apartment buildings adjoining eight of its car barns, the buildings containing from 58 to 247 apartments each. The largest of these occupies an entire city block, with the car barn in the middle of one side.

These apartments are rented to employees at rates considerably lower than the current rate and are primarily for employees of the company. If a worker leaves the employ of the firm, although he is not obliged to vacate, he must pay a higher rent. The rents are "based on providing a sinking fund of 1 per cent a year on the cost of the buildings after paying maintenance and interest on the investment."

The apartments are of 1, 2, and 3 rooms, exclusive of kitchen, bathroom, and hall, and nearly every apartment has a balcony.

Native Labor Conditions and Population Problems in Nyasaland, Africa

THE International Labor Review for July, 1927, contains an article entitled "Native labor conditions and population problems in Nyasaland," based on data taken from the report on the Nyasaland census of 1926.¹

The Nyasaland Protectorate has a land area of about 37,890 square miles and a population of 1,290,885 natives, 1,656 Europeans, and 850 Asiatics. Its general location is southeast Africa.

The report states that the exodus of thousands of native laborers from Nyasaland each year in search of work and adventure in Southern Rhodesia, where they often remain as long as 10 years and from which they seldom return before 3 years have elapsed, is regarded by many as a serious social problem in Nyasaland and as the foremost cause tending to reduce the native birth rate below its normal figure, although various native practices and superstitions are mentioned as possible causes. Data obtained in the 1926 census of Nyasaland show that the average birth rate per family is 6.32. This rate, although not a high general birth rate, is thought to be "high enough to cause a rapid increase in the population if the death rates could be reduced, and more especially if the expectation of life in adults could be increased concurrently." Of 13,644 children born to 2,159 women questioned, 12,180 were born alive and 1,464 were stillborn, 2,288 died before walking, and 3,032 died as children, leaving only 6,860, or slightly more than 50 per cent, who lived through childhood. The average number of stillbirths per family was 0.68 and the deaths before walking 1.06. These rates are believed to be unduly high and are "undoubtedly affected by the factors limiting the birth rate, especially those arising from native conservatism and customs." The mortality of children between 2 and 14 years of age, according to the figures cited, averaged 1.40 per family, or one child in every four born. Among the causes given for this high rate are deaths from accidental causes associated more or less with parental neglect,

¹ Africa (Nyasaland Protectorate). Superintendent of Census. Report on the census of 1926. Zomba, 1926.

complete absence of organized medical attention within the reach of the ordinary natives, and insufficient and unsuitable food during the periods of food shortage which occur nearly every year in some part of the Protectorate.

The problem of the emigration from the country of large numbers of laborers, many of whom are married, has been recognized by the Government in passing legislation by which natives "are forbidden by law to leave the Protectorate without a pass, and it is illegal to recruit natives in Nyasaland for service outside. Before a pass is issued the native is bound to satisfy the resident magistrate that he has made provision for the support of his family and for the payment of his hut tax for the current and ensuing year, but Nyasaland has hundreds of miles of open and unguarded border, and thousands of natives leave for Southern Rhodesia each year without passes, paying without demur the fine of 10s. or £1 (\$2.43 or \$4.87, par) for having evaded the laws."

The report places the number of temporary emigrants from Nyasaland who are employed in Southern Rhodesia at about 30,000, with average earnings for each of £1 per month. It is reported that these emigrants bring or send back home at least £100,000 a year, and it is doubtful whether they could at present be employed at home either in producing crops for export or in paid employment in such a way as to provide an addition to the country's net earnings after meeting all expenses and their own maintenance and purchases on the Rhodesian scale of an amount equivalent to the £100,000 actually distributed.

Native labor, in the aggregate, is considered expensive because of its inefficiency. It is said that "the natural life of a native is not conducive to sustained labor and unless some trouble is taken with him he is not capable of regular work for a long period. Under normal conditions, if he works at full pitch, three or four hours is the limit of his effective day's work. Subconsciously he adapts his output of labor so that it will spread over the time he is called upon to work. Overtime, however encouraged or rewarded, means a lower standard of efficiency throughout the whole task, and the overtime period is entirely wasted in many cases. The labor problem is not one of numbers but of the efficiency of the unit, and that efficiency is a medico-social matter which can only be solved by the combined action of the natives themselves, the Government, and the employers of labor."

The natives of Nyasaland are afflicted with various physical ailments, the most serious mentioned being leprosy, consumption, hookworm, and malaria, and very few of them live to be over 70 years of age. Malnutrition, due to unsuitable diet, is said to be an important factor in undermining their health. Hookworm is prevalent to such an extent that it would probably be simplest to say that all natives are infected. The increased prevalence in recent years has been ascribed to the breakdown of tribal discipline. Headmen are responsible for the sanitation of their villages, but they have little power, and the administrative staff is not large enough to insure that the sanitary measures laid down in theory are accomplished in fact. The laziness and inefficiency so often complained of in native laborers are believed to be due partly to hookworm and other complaints and partly to undernourishment.

Under the "employment of natives ordinance" an employer of native laborers must see that they are fed. Natives working in their own district may receive cash in lieu of rations if they desire, as also may other natives between May 1 and October 31, the dry season. The natives "almost invariably exercise the option, as they try and save on their ration money, not realizing the cost to their health and efficiency, though there are indications of a change in the natives' attitude on this point."

The minimum weekly ration scale under the ordinance is slightly less liberal than the legal minimum for short-term prisoners. The scale for long-term prisoners (six months and over) would appear extraordinarily liberal to a laborer, and it may be said with confidence that very few free natives get such a diet throughout the year, although the medical authorities regard it as the irreducible minimum for a manual laborer.

In 1910, although at that time the study of food values had not advanced far, a committee appointed to consider the question of native diets in Southern Rhodesia stated that the minimum allowance of meat (1 pound a week), as then laid down for natives working on the mines, was undoubtedly insufficient.

The superintendent of census points out that if the daily scale recommended by this committee is to be considered a reasonable scale for a working native there remains no vestige of doubt that the Nyasaland native is undernourished and that that is the crux of the local labor problem.

The superintendent recommends that the option of receiving money in lieu of rations be taken away from native employees and a revised ration scale prepared; that an adequate inquiry be instituted into the suitability of the normal native foodstuffs as a whole and in particular localities, and into the possibility of introducing a more suitable form of staple or subsidiary diet; and that in view of the medical opinion that biological proteids are essential to a proper diet, especially of a manual laborer, and in view of the fact that the available meat supplies are inadequate, an inquiry be made into the methods best calculated to increase the existing flocks and herds and to insure a regular and sufficient supply of meat at a reasonable price in those areas where it is most needed. But whatever steps are taken by the Government to foster the health of the native population the superintendent considers that a great responsibility rests upon the employers of labor.

Suggested Means of Utilizing Workers' Spare Time in Chile¹

THE committee appointed recently by the Chilean Ministry of Social Welfare to consider the utilization of workers' spare time has held several meetings and recommends that libraries and museums should be open between 5 and 8 p. m., that gardens and parks should be open between 5 and 10 p. m. without charge for pedestrians, that popular concerts should be given after 5 p. m., and that a national stadium should be built and a national interest in sports developed.

¹ Chile. Boletín del Ministerio de Higiene, Asistencia y Previsión Social, May, 1927, and International Labor Office, Industrial and Labor Information, Geneva, July 18, 1927, p. 61.

PRODUCTIVITY OF LABOR

Increased Productivity in Various Industries, 1899 to 1925

PREVIOUS articles in the Labor Review have presented data regarding the increased productivity of labor in various industries, particularly in manufacturing and in railroad transportation. In the Commerce Yearbook for 1926 considerable space is devoted to this subject and estimates given of the increase in output per worker over the period 1899 to 1925 for agriculture and mining, as well as for manufacturing. According to these estimates the output per worker during the period referred to increased 45 per cent in agriculture and 99 per cent in mining, as compared with 48 per cent in manufacturing and in railroad transportation, the average increase for all four groups being 79 per cent. This means that for the major industries of the country the total output of 1925 could be produced with not very far from one-half the number of workers which would have been required under conditions existing in 1899.

The detailed explanations and compilations showing how these results were obtained are presented below, together with an analysis of certain of the factors responsible for the changing efficiency of production. The text and tables are taken from the Commerce Yearbook for 1926,¹ with corrections in the figures for mining in Table 1 as subsequently made by the Department of Commerce.

Quantitative Increase in Production, 1899 to 1925

CALCULATIONS as to the quantitative increase in the products of agriculture, mining, and manufactures and in the volume of railway traffic from 1899 to 1925 are summarized in Table 1. There are no long-time data as to construction, a field in which the increase during recent years has been exceptionally rapid. Still less possible is it to measure the increase in the services (other than rail transport) which do not incorporate themselves in tangible goods.

The data in the table are in part estimates and there may be a margin of error of several per cent in some of the items. The broad movement is, however, substantially as shown. The percentage of increase given for the output of factories is almost certainly an understatement. The quantitative figures from which the general average is computed are necessarily confined largely to commodities of simple type. Highly elaborate commodities in many instances can not be reported at all in terms of quantity and in many other cases the quantities are not comparable from census to census on account of differences of quality, style, shape, and size. In a progressing country increase in output is naturally most marked in the

¹United States. Department of Commerce. Bureau of Foreign and Domestic Commerce. Commerce yearbook, 1926. Vol. I—United States. Washington, 1927, pp. 16-24.

unstandardized articles. Moreover the quantitative increase in articles not themselves comparable quantitatively can not be satisfactorily estimated by adjusting the statistics of their value by price indexes. Price statistics of articles themselves are either not available or not comparable. It is not to be expected that the movement of their prices should be parallel with that of standardized commodities, since a large proportion of them are newly developed articles in the production of which improvements take place with exceptional rapidity, while the exceptional increase in output likewise tends to reduce cost of production.

TABLE 1.—GENERAL INDEXES OF PRODUCTION AND WORKERS, 1925 IN RELATION TO 1899

Industry	Workers (thousands)		Index 1925 (1899=100)			Value of output (millions of dollars)	
	1899	1925	Work- ers	Quant- itative output	Output per worker	1899	1925
Agriculture.....	10,500	10,500	100	145	145	3,500	12,400
Mining.....	600	1,065	177	348	199	600	4,300
Manufactures.....	5,200	9,772	188	278	148	4,830	26,775
Transportation (railway).....	929	1,846	198	293	148	1,300	5,602
Total or average.....	17,229	23,183	135	¹ 244	² 179	10,230	49,077

¹ Computed by giving the above percentages weights according to the relative importance of the several branches in 1899, as determined by value of product.

² Obtained by dividing the average index of increase in output (247) by the actual ratio of total workers in 1925 to the total in 1899 (135). The figure exceeds the weighted average of the indexes of output per worker in the several branches, because the increase in number of workers between 1899 and 1925 was confined to branches in which the average value of output per worker is greater than it is in agriculture.

The combined output of agricultural, mineral, and manufactured commodities, and of railroad transportation increased nearly two and one-half times between 1899 and 1925. Population meantime had increased 54 per cent, so that, per capita of the total population, the output of these branches of industry increased nearly 60 per cent.

The increase in production of goods and services not covered by Table 1 has been greater than in these fields themselves. This is indicated by the fact that the number of workers in these four branches increased between 1899 and 1925 by only about 35 per cent as compared with 54 per cent for the total population, reflecting the shift from agriculture, and more recently from manufactures, into commerce, professional and personal service, and construction. It is reasonable to assume that the increase in total output of goods and services of all kinds, per person in the total population, has been as great as the increase in output per worker in the four great branches of agriculture, mining, manufactures, and railroad transportation. This increase has been about 80 per cent (calculated by dividing 244, the relative number for output for 1925 as compared with 1899, by 135, the relative number for workers).²

² The calculations above summarized deal only with actual quantities, the combined percentages of increase being made up by weighting the percentages of change in the individual commodities according to their relative importance in terms of value. Roughly similar conclusions may be reached by adjusting the reported value of products according to the general wholesale price index.

The increase in production per hour of gainful labor has been even greater than the increase per worker. The hours of labor in every industry have been cut down during the past quarter century. Census statistics regarding hours of labor go back only to 1909. They show a reduction of 11 per cent between that year and 1923 (data for 1925 not yet being available). As compared with 1899 the reduction in hours for factory workers has probably been at least 15 per cent. In the other major branches of industry working hours have been cut down similarly.

Changes in Production From Census to Census

MORE detailed analysis of the available data indicates that there was a decided increase in production per person employed in the major branches of industry from the beginning of the century down to the outbreak of the World War, and a still more rapid increase after the close of the war. The movement is to some extent obscured by the fact that the year 1914, in which the quinquennial census of manufactures was taken, was one of considerable depression. Consequently little if any increase appeared in the output per worker in manufacturing industries between 1909 and 1914. Had the census covered the more normal year 1913 the upward trend disclosed by the two preceding censuses would have been found continuing. From 1899 to 1909 the number of wage earners in factories increased about 40 per cent, while the physical volume of production increased at least 60 per cent.

The exceptional demand for certain types of commodities during the war resulted in very great activity of business. Many women were called from the homes, and many men from the farms, to the factories, while the farmers in turn by greater effort were able to increase their production. The process of expanding output, however, carried with it great dislocation of industry—the employment of many workers on unfamiliar tasks, the turning of much machinery to purposes for which it was but little adapted, and the hasty erection of plants. Consequently efficiency of industry fell below normal. Production per worker in factories was no greater in 1919 than in the depressed year 1914. A very similar experience befell the railways.

The Increase in Production Since 1919

THE increase in production of the major industries since 1919 has been rapid and at the same time there has been a diminution in the number of workers in these industries, so that the increase in output per worker has been decidedly greater. The changes are shown in Table 2. In this table also some of the figures are approximate only, but it is probable that they understate rather than overstate the increase in production.

TABLE 2.—GENERAL INDEXES OF PRODUCTION AND WORKERS, 1925 IN RELATION TO 1919

Industry	Workers (thousands) ¹		Index 1925 (1919=100)			Value of output (millions of dollars)	
	1919	1925	Work-ers	Quantitative output	Output per worker	1919	1925
Agriculture.....	11,300	10,500	93	108	118	15,700	12,400
Mining.....	1,065	1,065	100	133	133	3,175	4,300
Manufactures.....	10,689	9,772	91½	123½	140	24,750	26,775
Transportation (railway) ²	1,915	1,744	91	104½	115	4,721	5,602
Total or average.....	24,969	23,081	93	120	129	48,346	49,077

¹ Estimates.² Data based on Class I roads.

Between 1919 and 1925 the output of the agricultural industry increased approximately 8 per cent, of mining 33 per cent, of manufactures 28½ per cent, and of transportation 4½ per cent. In each of these branches, except perhaps mining, as to which there are no complete statistics, there were fewer persons employed in 1925 than in 1919, and the increase in output per worker ranges from about 18 per cent for agriculture to 40 per cent for manufactures.

For the four branches combined the increase in output (ascertained by weighting the percentages of increase in the individual branches by the relative value of their products in 1919) was approximately one-fifth, while there was a decrease of about 7 per cent in the number of workers. The output per worker, therefore, was nearly 30 per cent greater in 1925 than in 1919.

As already stated, the production of 1919 was relatively inefficient so that the increase in output per worker in recent years is greater than would have been the case had normal conditions prevailed throughout the world. That this is far from being the only explanation of the increase, however, is shown apart from other evidences, by comparison of the normal and prosperous year 1923 with the normal and prosperous year 1925. The number of wage earners in American factories declined by 4.4 per cent but the quantity of output increased by 6 or 7 per cent, the output per worker being at least 11 per cent greater in 1925 than in 1923. Similarly the railways (Class I carriers) carried practically the same volume of traffic in 1925 as in 1923 (slightly greater freight and somewhat less passenger traffic) but were able to do so with 7 per cent fewer employees.

Major Factors in Advancing Industrial Efficiency

THE fact that national output per capita has long been greater in the United States than in most other countries is in some measure owing to the abundance of agricultural land in proportion to the population, and the abundance and variety of mineral resources. During the earlier history of the country its progress was in considerable part owing to the opening up of new resources. The increase in output during recent decades, however, can not be attributed to this cause. There have been some new discoveries of minerals, notably of petroleum, but these contributions have been offset by the partial using up of other resources and by the necessity, with the

growth of population, of extending cultivation to somewhat inferior lands. The principal factors in the recent increase in productivity are, therefore, human as distinguished from natural factors.

Education and Research

AMONG these factors is the advance in education and scientific research. (Table 3.) Taking account both of the proportion of the children in school and of the average duration of attendance, the amount of elementary and secondary instruction given in 1924 was 154 per cent greater than in 1870, and 85 per cent greater than in 1890. In 1890 about 5½ per cent of the children between the ages of 14 and 17 years were in high schools and academies; in 1924 over 33 per cent. Of persons 18 to 21 years of age about 1½ per cent were in colleges and universities in 1890, and more than 7½ per cent in 1924. Meantime instruction has become much better in quality and especially more practical and more conducive to thinking power and to productive capacity. The rapidly expanding scientific research in colleges and universities, in endowed research institutions and in laboratories of great industrial concerns, has also proved of great practical importance in the progress of industry.

TABLE 3.—PROGRESS OF EDUCATION IN THE UNITED STATES

Item	1870	1890	1910	1920	1924
Pupils in elementary and secondary schools, per cent of total population 5 to 17 years of age.....	57.0	68.6	73.5	77.8	82.8
Average days' attendance in the year.....	78	86	113	121	132
Expenditure for elementary and secondary schools per person 5 to 17 years of age.....	\$5	\$7	\$24	\$37	\$62
Average annual salary of teachers in elementary and secondary schools.....	\$189	\$252	\$485	\$871	\$1,227
Pupils in high schools and academies, thousands.....		298	1,032	2,041	2,754
Per cent of total population 14 to 17 years of age.....		5.6	14.3	26.4	33.2
Pupils in collegiate, postgraduate, and professional courses, thousands.....		78	204	414	607
Per cent of total population 18 to 21 years of age.....		1.5	2.8	5.6	7.7
Receipts of institutions of higher learning, exclusive of additions to endowment, millions of dollars.....			78	189	341
Percentage of illiterates in population 10 years of age and over:					
All classes.....	20.0	13.3	7.7	6.0	-----
All whites.....	11.5	7.7	5.0	4.0	-----
Native whites.....		6.2	3.0	2.0	-----
Negro.....	81.4	57.1	30.4	22.9	-----

Capital

ANOTHER factor in the progress of industry is the large and increasing use of capital. The reports of corporations for taxation purposes furnish significant data as to capital used in production; the great bulk of industry is conducted by corporations. The combined assets of corporations in the fields of mining, manufacturing, transportation, and public utilities in 1924 were more than \$90,000,000,000, of which about \$28,000,000,000 were in the form of current assets—inventory, accounts receivable, and cash—and the remainder in fixed assets—plant and equipment. In the mining industry the assets of corporations were equal to about \$10,500 per wage earner employed (including the wage earners of noncorporate concerns). The corresponding proportion for manufacturing industries was about \$5,250, and for the steam railroads more than \$8,000.

The amount of capital used is rapidly increasing. The increase in the savings deposits in banks, the increase in assets of building and loan associations, the premiums paid to life insurance companies less the operating expenses, and the additions to surpluses of corporations, together total about \$6,000,000,000 annually. There are, of course, many other forms of savings, apart from these. It has been roughly estimated that the total annual savings amount to about \$10,000,000,000. These savings largely go directly to aid production. They include also, however, sums invested, as in homes and public improvements, for the purpose of producing not salable commodities or services but a continuous use or enjoyment.

Machinery and Power

THE use of capital in industry is reflected conspicuously in the machine equipment of farms, factories, mines, and other productive enterprises. The relative abundance of capital makes it possible with advantage to discard promptly the less efficient machine in favor of the more efficient.

A rough measure of the use of machinery is furnished by the statistics of the capacity of prime movers. In manufacturing industries each wage earner on the average is aided by prime movers of a capacity of 4.3 horsepower; in 1899 the average was 2.1. The power employed on American railways has similarly increased. The average capacity of the individual locomotive has doubled since 1900 and it requires no more men to operate a locomotive than before.

A still broader view of the use of power is gained from the data of the production of mineral fuels and of water power. The output of these fuels and water power, reduced to the terms of equivalent of coal, has averaged during recent years about $7\frac{1}{2}$ tons per capita of the entire population, a figure four or five times greater than half a century ago, and about twice as great as in 1900. Moreover the heat and energy derived have increased much more still by reason of the growing efficiency with which fuels are utilized.

Mass Production

EXCEPT in agriculture, where the so-called one-man farm has thus far proved more efficient, American industry is characterized by large-scale production.

In 1923 there were more than 10,000 manufacturing establishments in this country with an output each exceeding \$1,000,000, and these together contributed two-thirds of the value of all factory products. There were nearly 1,000 factories each employing more than 1,000 wage earners and these together reported 2,100,000 employees out of an aggregate of 8,800,000 in all plants. Considerably more than half of the total number of factory workers were in plants employing 250 or more wage earners each. The relative importance of large plants has increased materially; in 1909 (the first year for which comparable statistics are available) 43 per cent of all factory wage earners were in plants with more than 250 employees.

TABLE 4.—RELATION OF POWER EQUIPMENT TO NUMBER OF WORKERS

[Source: Bureau of the Census, Department of Commerce, and Interstate Commerce Commission]

Industry group and year	Wage earners	Horsepower of prime movers	Horsepower per wage earner
Manufacturing industries:			
1899	4,713,000	10,000,000	2.1
1909	6,615,000	18,675,000	2.8
1914	7,036,000	22,437,000	3.2
1919	9,096,000	29,504,000	3.2
1923	8,778,000	33,094,000	3.8
1925	8,384,000	35,735,000	4.3*
Mining and quarrying:			
1902	581,728	2,867,562	4.9
1909	1,065,283	4,608,253	4.3
1919	1,088,189	6,723,786	6.2

Industry group and year	Number of employees	Aggregate tractive power of locomotives	Total capacity of freight cars	Per employee	
				Tractive power	Car capacity
Railways:					
Fiscal year—		000 pounds	Tons	Pounds	Tons.
1899	929,000	1,660,000	34,980,000	710	37.7
1909	1,503,000	1,549,000	73,665,000	1,030	49.0
1914	1,710,000	1,932,000	90,977,000	1,130	53.2
Calendar year—					
Class I—					
1919	¹ 1,935,000	2,313,000	99,001,000	1,200	51.2
1923	² 1,879,000	2,544,000	101,318,000	1,350	53.9
1925	¹ 1,769,000	2,587,000	105,570,000	1,460	59.7

¹ Number of locomotives, 36,703; estimated average capacity, 18,000 pounds. Number of cars, 1,205,510; estimated average capacity, 27 tons.

² Including Class I switching and terminal companies; 1919 estimated as to such companies.

Large scale production is particularly conducive to low costs where processes are repetitive—that is, where large quantities of the same product are turned out. The big plant can in such cases introduce highly specialized machinery adapted to the various particular tasks, whereas the smaller plant must often use machines intended for more general purposes, turning them first to one and then to another operation. Repetition also permits close specialization of labor.

The great magnitude of the domestic market has much to do with large-scale operation of plants. The United States has a population much greater than that of any other country of high standard of living and the per capita income of its people averages much higher than in most other countries. For many manufactured articles the American market is greater than that of all other countries combined. In Europe the many national boundaries place barriers on the distribution of products, and tend to limit the size of the plants producing any given article.

Elimination of Waste

MUCH of the progress of industry, especially during recent years, has been owing to the fact that problems of production and distribution have been systematically studied. The result has been to render discovery, invention, and improvement largely an organized and continuous process rather than a haphazard one. This movement has come to be commonly designated as "elimination of waste"

or "simplified practice." These systematic movements are conducted by individual corporations and other concerns, by associations of producers, dealers and consumers, by special research organizations, by universities, and by the Federal and State Governments. There is a growing practice of cooperation among all interests toward this end.

One of the several important directions taken in recent years has been concerted agreement for the simplification of products. In scores of branches of industry producers, dealers, and consumers have agreed to the cutting out of unnecessary sizes, shapes, and varieties of products, concentrating production on a limited number of standard forms, with the consequent marked reduction in average unit cost.

The production of goods is particularly conducive to low costs where the quantity of the goods is large. The large plant can in such cases introduce machinery adapted to the various particular jobs. The smaller plant must often use machines intended for more general purposes, turning them first to one and then to another. Competition also permits close specialization of labor. The domestic market has much to do with the operation of plants. The United States has a population greater than that of any other country of high standard of living, and the per capita income of its people exceeds much higher than that of any other country. For many manufactured articles the market is given by the fact that of all other countries combined it is the many national borders plant buyers on the domestic market and tend to limit the size of the plants producing such products and to limit the size of the plant. The elimination of waste is a common process in the industry of Western nations. The progress of industry, especially during recent years, has been largely due to the fact that the process of production and distribution have been systematically studied. The results have been to make discovery, invention, and improvement largely an organized and continuous process rather than a haphazard one. This movement has come to be commonly designated as "elimination of waste."

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MINIMUM WAGE

Minimum Wage Decisions, Massachusetts

THE minimum wage division of the Massachusetts State Department of Labor and Industries has recently issued a report of its activities for the year ended November 30, 1926. During this period decrees establishing minimum rates of wages in two occupations were entered, one affecting employees in candy factories and the other employees in jewelry and related lines.

The rate of \$13 per week fixed for experienced workers in the candy occupation supersedes the \$12.50 rate entered July 19, 1919, and became effective March 1, 1926. The rate for beginners and learners was fixed at \$9 per week. A rate of \$14.40 per week was decreed for female employees of ordinary ability in the manufacture of jewelry and related lines, with a special minimum rate for beginners of \$12 a week. The decree became effective January 1, 1927.

In the course of the regular inspection work for the year wage records were secured for 36,454 women in 1,361 establishments under 15 decrees. Of this number 34,479, or 94.6 per cent, represented full compliance. In 1,030 establishments with 22,753 employees full compliance was shown at the time of the first inspection. There were 1,968 cases of noncompliance found in 328 establishments, the majority of which were in firms that had been previously advertised because of their noncompliance.

Wage records were secured for 4,542 women in 115 candy factories, and for 4,450 women in 80 establishments manufacturing stationery goods and envelopes. There were 90 cases in 29 candy factories requiring adjustment and 221 cases in 39 stationery-goods establishments; the greater number of these were settled before the close of the year.

Noncompliances under the candy decree represent 0.2 per cent of the employees for whom records were secured and 1.7 per cent in the case of the establishments. Under the stationery-goods and envelopes decree the noncompliance cases represent 0.4 per cent with respect to the employees and 1.3 per cent with respect to establishments.

The result of a study of the wages of women employed in the manufacture of electrical machinery and supplies in 16 cities made in 1925 discloses that out of 2,443 cases in 34 firms nearly one-half (47.1 per cent) were earning under \$15 a week, and nearly one-third (31.8 per cent) under \$13 a week. Of the 761 women paid on a time basis two-thirds (65.2 per cent) had rates for full-time employment below \$15 a week, and more than one-third (36.8 per cent) had rates below \$13 a week.

Minimum Wage and Native Labor in South Africa

ACCORDING to Industrial and Labor Information, of the International Labor Office, for July 11, 1927, the Government of South Africa was recently called upon to defend itself for having established a minimum wage of a shilling an hour for some forms of unskilled labor. Unskilled labor in South Africa is usually performed by natives or colored workers, and the charge was made that the rate thus fixed was too high, leading to demands from other natives and rousing unrest among those not receiving it.

In the South African House of Assembly on May 19, 1927, a member of the opposition drew attention to the inclusion in Government contracts by the Minister of Posts and Telegraphs of a clause stipulating for the payment of a minimum rate of wage for unskilled labor of 8s. a day for a day of eight hours.

He argued that such a minimum wage policy could not be limited to Government contracts, and that it had in fact caused excessive wage demands among native agricultural workers. He also criticized the minister for attempting to justify his action by informing the natives that they could not live decently on less than 8s. a day, and by pointing out that the natives were organizing.

In reply the minister expressed the opinion that members were not serious in declaring that a minimum wage of 8s. a day had had a pernicious effect on natives in the countryside. Moreover, in regard to the Government contracts, every case was treated on its merits, and in certain parts of the country the shilling-an-hour clause had been modified to fit the circumstances. He had, however, definitely laid down the policy that payment should be for work and not for color. If the contractors preferred to pay 8s. a day to efficient black workers rather than take on whites, he considered the position satisfactory, as they would be paying for the work performed.

INDUSTRIAL ACCIDENTS

Accident Experience in the Iron and Steel Industry to the End of 1926

FOR some years past accident experience for the iron and steel industry has been presented by the Bureau of Labor Statistics for two groups of plants. One group is selected as embodying the best practices and the most pronounced success in the effort at accident prevention. The other group embraces all plants for which it was possible to secure information, including those plants mentioned above.

Table 1 presents the results in the selected group to the end of 1926:

TABLE 1.—ACCIDENT FREQUENCY RATES (PER 1,000,000 HOURS' EXPOSURE) FOR A SELECTED GROUP OF IRON AND STEEL PLANTS, 1913 TO 1926, BY PRODUCTS AND BY YEARS

Year	Fabricated products	Sheets	Wire and products	Tubes	Miscellaneous steel		Total
					Group A	Group B	
1913	100.3	61.6	50.3	27.2	70.9	41.3	60.3
1914	50.0	47.2	46.2	12.5	50.7	27.6	43.5
1915	53.5	37.3	52.4	10.8	51.9	23.0	41.5
1916	52.1	34.0	48.2	12.4	67.6	28.2	44.4
1917	51.3	33.9	32.5	10.2	51.3	20.5	34.5
1918	38.2	25.9	18.8	9.1	42.0	31.4	28.8
1919	32.8	25.8	12.5	9.1	39.7	23.0	26.1
1920	35.3	22.7	12.0	8.9	35.3	18.6	22.9
1921	28.4	17.5	7.5	6.1	15.8	12.1	13.2
1922	33.8	16.9	7.9	7.1	14.5	10.8	13.0
1923	32.6	17.2	7.9	7.0	13.9	9.8	12.7
1924	33.4	10.3	6.2	5.1	11.8	7.9	10.2
1925	27.4	11.4	4.2	4.0	9.8	3.7	8.2
1926	24.3	9.4	3.9	3.6	6.6	3.8	6.8

The same data contained in Table 1 are presented in Table 2 from another point of view. It would be quite possible that in a generally favorable situation there should be concealed a very unsatisfactory situation in respect of certain departments or causes. Table 2 shows that the influences tending to accident reduction have been remarkably pervasive.

There is somewhat prevalent an idea that machinery has come to be almost without significance in the accident problem. Neither these figures nor any others of similar character justify this conclusion. In common with other causes machines are now operated much more safely than in the past but relatively to other causes injuries due to them are still of serious moment.

TABLE 2.—ACCIDENT FREQUENCY RATES (PER 1,000,000 HOURS' EXPOSURE) FOR A SELECTED GROUP OF IRON AND STEEL PLANTS, 1913 TO 1926, BY YEARS AND CAUSES

Accident cause	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	Total
Machinery	7.3	5.0	4.9	5.4	4.5	4.0	3.3	3.4	1.8	2.3	2.3	2.0	1.6	1.5	2.4
Working machines	3.8	2.7	2.6	2.6	2.0	1.8	1.4	1.5	.8	1.1	1.0	.8	.7	.7	1.6
Caught in	2.5	1.8	1.7	1.7	1.2	1.1	.9	1.0	.6	.8	.7	.6	.5	.5	1.1
Breakage	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	(1)	(1)	(1)	(1)	.1
Moving material in	1.2	.8	.8	.8	.7	.6	.4	.4	.1	.3	.2	.2	.2	.2	.3
Cranes, etc.	3.5	2.3	2.3	2.8	2.5	2.2	1.9	1.9	1.0	1.2	1.3	1.2	.9	.9	1.8
Overhead	2.8	1.9	2.0	2.5	2.2	1.9	1.6	1.5	.8	1.0	1.1	.9	.7	.7	1.3
Locomotive	.3	.2	.2	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.2
Other hoisting apparatus	.4	.2	.1	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1
Vehicles	2.3	1.9	1.6	1.7	1.7	1.3	1.2	1.1	.5	.4	.6	.5	.3	.3	1.0
Hot substances	5.4	3.6	3.7	4.5	3.6	3.0	2.8	2.5	1.2	1.1	1.2	.9	.6	.5	2.4
Electricity	.5	.4	.2	.4	.3	.3	.2	.3	.1	.1	(1)	.1	(1)	.1	.3
Hot metal	3.6	2.1	2.3	3.0	2.5	2.1	2.0	1.8	.8	.7	.9	.6	.4	.4	1.8
Hot water, etc.	1.3	1.1	1.2	1.1	.8	.6	.6	.4	.2	.3	.2	.2	.1	.1	.8
Falls of persons	4.5	4.1	3.5	3.7	3.2	2.8	2.8	2.5	1.7	1.5	1.4	1.4	1.1	1.0	2.4
From ladders	.3	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	(1)	.1	.1
From scaffolds	.2	.2	.2	.2	.3	.2	.2	.2	.1	.1	.1	.1	.1	.1	.1
Into openings	.2	.1	.1	.3	.2	.1	.1	.1	.1	(1)	.1	(1)	.1	.1	.3
Due to insecure footing	3.8	3.7	3.1	3.1	2.6	2.3	2.3	2.1	1.4	1.3	1.1	1.1	.9	.8	2.0
Falling material not otherwise specified	1.2	.7	.7	.6	.4	.3	.4		.1	.1	.1	.1	.1	.1	.1
Handling	26.7	19.4	20.6	21.5	15.7	12.8	11.7	10.4	6.5	5.8	5.5	3.9	3.4	2.9	11.4
Dropped in handling	11.2	7.3	7.6	8.4	6.1	5.5	5.0	4.4	2.6	2.6	2.3	1.9	1.5	1.2	4.7
Caught between	3.4	2.6	2.6	3.1	2.1	1.7	1.7	1.3	.7	.7	.7	.5	.4	.3	1.4
Trucks	1.9	1.0	1.4	1.4	1.2	.9	.7	.6	.5	.4	.4	.2	.2	.2	.8
Lifting	2.5														

TABLE 3.—ACCIDENT RATES IN THE IRON AND STEEL INDUSTRY, BY DEPARTMENTS AND 5-YEAR PERIODS

Frequency rates (per 1,000,000 hours' exposure)

Period	All departments	Blast furnaces	Bessemer converters	Open hearth	Foundries	Heavy-rolling mills	Plate mills	Sheet mills
1907-1911	69.2	76.1	101.5	84.2	60.1	61.0	69.4	44.1
1908-1912	65.1	67.7	79.5	79.5	61.5	57.0	60.8	47.9
1909-1913	62.1	62.4	92.3	78.6	65.1	51.7	55.9	49.1
1910-1914	59.2	62.3	89.8	75.0	63.6	46.1	49.9	51.1
1911-1915	54.3	50.3	65.0	67.6	59.3	39.4	44.7	48.1
1912-1916	51.3	47.8	76.1	64.8	57.8	37.3	41.5	47.4
1913-1917	48.2	41.4	68.3	58.4	60.4	32.1	36.6	41.3
1914-1918	43.6	40.5	60.7	53.5	57.0	31.1	36.8	35.8
1915-1919	41.5	39.0	57.7	50.5	61.0	32.4	39.2	32.7
1916-1920	41.1	38.0	53.1	50.2	61.0	31.4	38.4	33.7
1917-1921	39.5	36.3	47.0	44.8	63.1	29.9	37.6	33.4
1918-1922	36.5	34.0	39.9	41.3	60.4	27.6	36.7	35.2
1919-1923	34.9	32.9	30.5	33.0	61.7	23.8	31.4	37.2
1920-1924	33.6	30.7	24.9	32.9	62.7	21.2	29.4	35.1
1921-1925	31.3	29.0	17.0	29.9	63.1	18.1	26.8	33.2
1922-1926	29.9	28.7	16.7	28.3	62.8	16.6	25.6	30.6

Severity rates (per 1,000 hours' exposure)

Period	All departments	Blast furnaces	Bessemer converters	Open hearth	Foundries	Heavy-rolling mills	Plate mills	Sheet mills
1907-1911	5.0	10.6	7.6	7.5	2.7	4.4	5.1	3.1
1908-1912	4.3	8.8	7.4	6.6	3.1	4.2	4.1	2.8
1909-1913	4.4	8.3	6.7	6.8	3.5	4.0	3.8	3.0
1910-1914	4.1	7.0	6.4	6.6	3.6	3.6	3.9	2.6
1911-1915	3.6	6.2	5.3	5.8	3.3	3.4	3.1	2.2
1912-1916	3.7	5.8	6.1	5.5	3.1	3.5	2.8	2.3
1913-1917	3.7	6.6	7.1	5.1	3.3	3.6	2.6	2.1
1914-1918	3.5	5.4	7.3	5.8	3.2	3.4	2.6	1.8
1915-1919	3.6	5.8	6.9	6.5	3.4	3.9	2.5	1.5
1916-1920	3.5	5.7	6.3	6.3	3.2	3.5	2.6	1.8
1917-1921	3.4	5.7	5.4	5.8	3.2	3.3	2.5	1.7
1918-1922	3.1	5.5	4.2	5.3	2.7	2.9	2.5	1.8
1919-1923	3.0	5.0	3.2	4.2				

more authoritative than that of the individual years. For this reason these periods will be used as the basis of comment, being designated as period 1, period 2, and period 3.

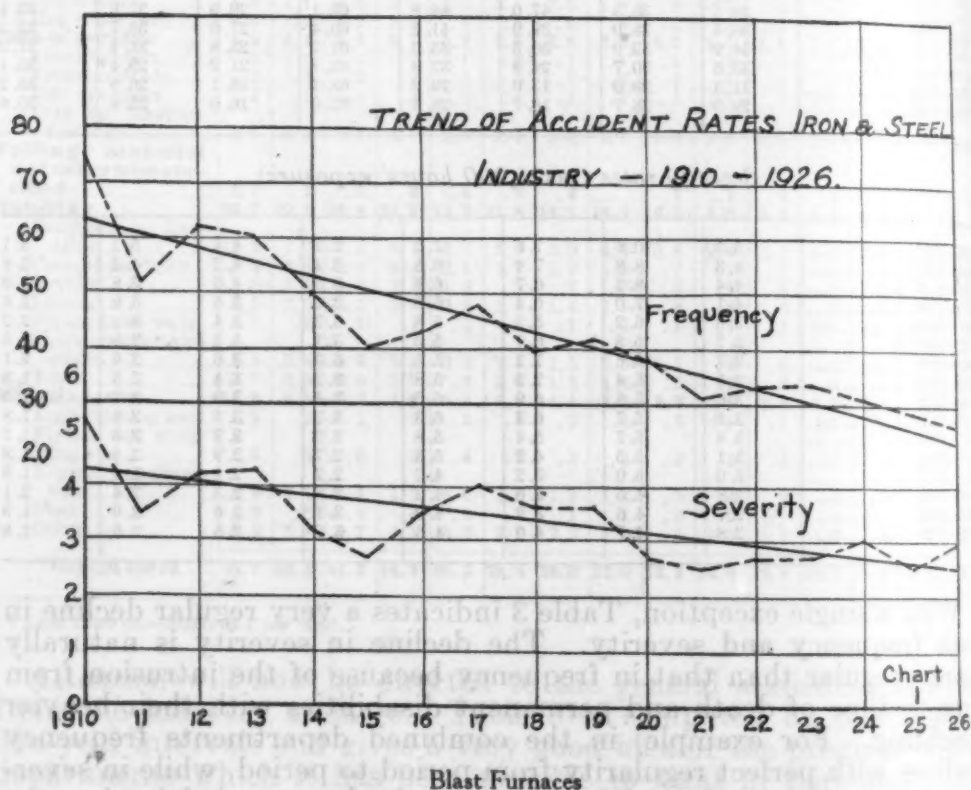
The Industry

Frequency rates: Period 1, 59.2; period 2, 41.6; period 3, 33.6.

Severity rates: Period 1, 4.1; period 2, 3.6; period 3, 2.8.

In 1925 both frequency and severity declined, while in 1926 frequency further declined and severity slightly increased.

Chart 1 presents the straight-line trends derived by applying the method of least squares to the details of the iron and steel industry accident rates as shown in Table 4 (p. 43).



Frequency rates: Period 1, 62.3; period 2, 39.0; period 3, 30.7.

Severity rates: Period 1, 7.0; period 2, 6.1; period 3, 4.5.

In 1925 both rates declined, and in 1926 both rates rose slightly.

Blast furnaces are generally recognized as one of the particularly hazardous departments of the industry. If an intrinsically dangerous department can bring about such improvement as that shown by these rates it should be possible for any department to improve its record.

Chart 2 presents the straight-line trends derived by applying the method of least squares to the details of blast furnace accident rates as shown in Table 4.

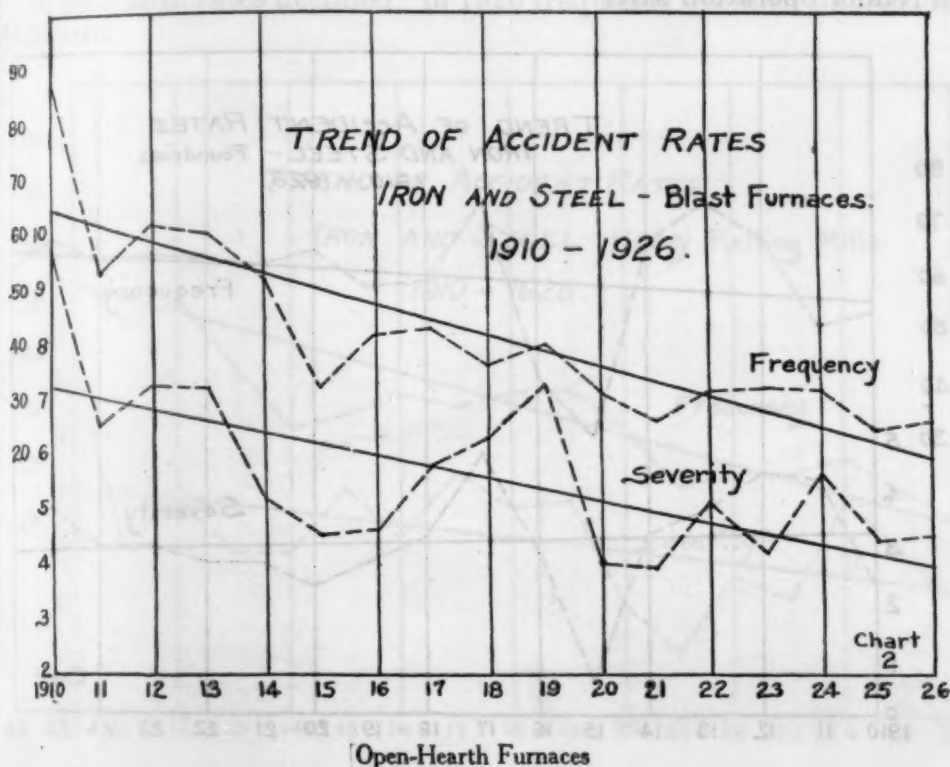
Bessemer Converters

Frequency rates: Period 1, 89.8; period 2, 57.7; period 3, 24.9.

Severity rates: Period 1, 6.4; period 2, 6.9; period 3, 2.6.

In 1925 frequency declined very markedly and severity rose, and in 1926 both rates rose.

There has been a considerable and fairly steady decline in frequency, but severity has shown great irregularity. This is due in part to a too-small exposure and in part to the nature of the operation, involving hazard against which it is difficult to guard.



Open-Hearth Furnaces

Frequency rates: Period 1, 75.0; period 2, 50.5; period 3, 32.9.

Severity rates: Period 1, 6.6; period 2, 6.5; period 3, 4.2.

In 1925 both rates declined, and in 1926 a further decline in frequency was registered, while severity rather sharply increased.

Foundries

Frequency rates: Period 1, 63.6; period 2, 61.0; period 3, 62.7.

Severity rates: Period 1, 3.6; period 2, 3.4; period 3, 2.8.

In 1925 both rates rose, and in 1926 both somewhat declined.

The figures quoted above show a practically unchanged frequency; some improvement in severity. If Table 4 be consulted, it will appear that no substantial improvement has occurred in the years covered by the study. This is particularly disappointing in view of the fact that some of the foundry organizations have made a fine record.

Chart 3 presents the straight-line trends derived by applying the method of least squares to the details of foundry accident rates, as shown in Table 4.

Heavy-Rolling Mills

Frequency rates: Period 1, 46.1; period 2, 32.4; period 3, 21.2.

Severity rates: Period 1, 3.6; period 2, 3.9; period 3, 2.3.

In 1925 both rates declined, and there was a further decline of both rates in 1926. This decline in rates is undoubtedly due in considerable measure to modifications in the mills, which have tended to render operation safer.

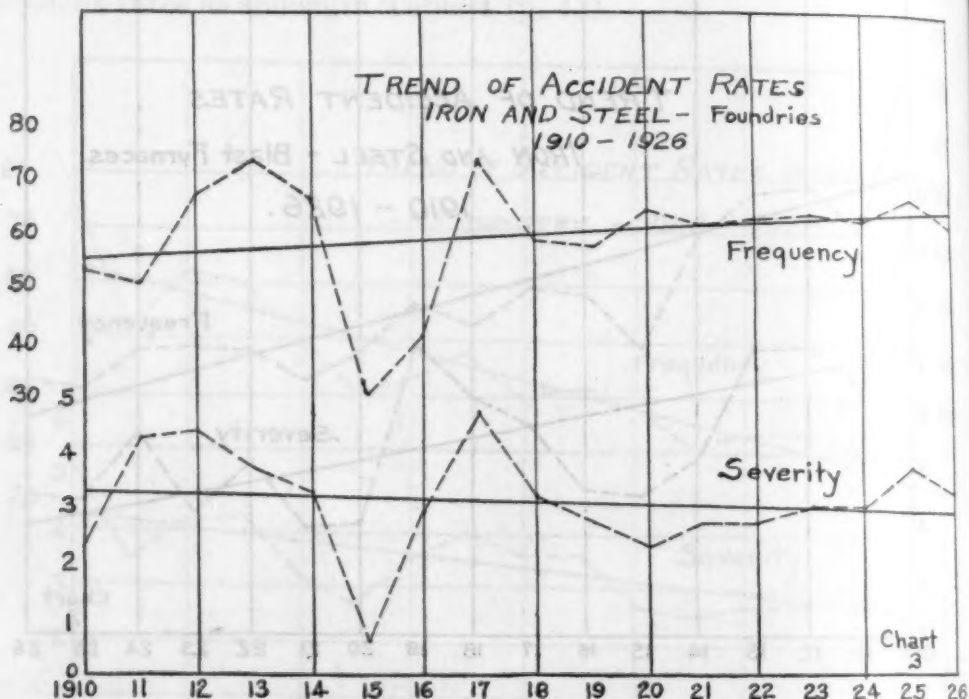


Chart 4 presents the straight-line trends derived by applying the method of least squares to the details of heavy-rolling mill accident rates, as shown in Table 4.

Plate Mills

Frequency rates: Period 1, 49.9; period 2, 39.2; period 3, 29.4.

Severity rates: Period 1, 3.9; period 2, 2.5; period 3, 2.4.

In 1925 frequency declined and severity rose, and in 1926 both rates declined.

Sheet Mills

Frequency rates: Period 1, 51.1; period 2, 32.7; period 3, 35.1.

Severity rates: Period 1, 2.6; period 2, 1.5; period 3, 2.1.

In 1925 frequency rose and severity remained unchanged. A decline of both rates was again registered in 1926.

Tube Mills

Frequency rates: Period 1, 40.5; period 2, 22.4; period 3, 22.7.

Severity rates: Period 1, 2.2; period 2, 1.8; period 3, 1.9.

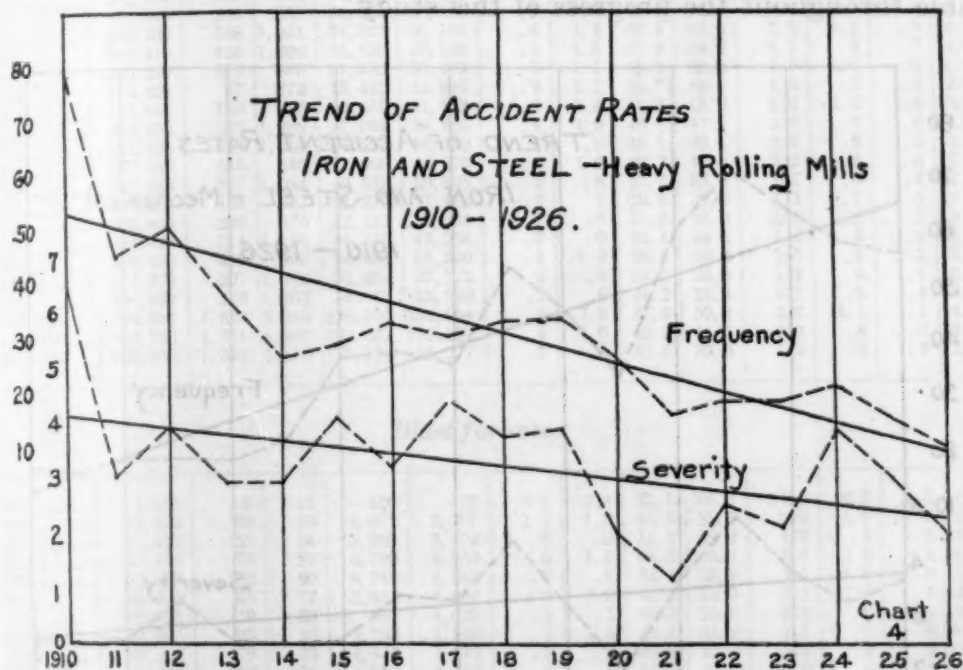
In both rates there was a decline in 1925, and in 1926 frequency rose and severity declined.

Fabricating Shops

Frequency rates: Period 1, 79.9; period 2, 55.2; period 3, 52.7.

Severity rates: Period 1, 3.4; period 2, 2.6; period 3, 2.4.

In 1925 both rates declined; in 1926 frequency declined but severity increased.



Wire Drawing

Frequency rates: Period 1, 65.7; period 2, 45.8; period 3, 24.0.

Severity rates: Period 1, 3.2; period 2, 2.6; period 3, 2.3.

In 1925 frequency rose and severity declined; in 1926 both rates declined.

Wire drawing is peculiar in that the severity of accidents causing permanent disability is in excess of that due to death. This is related to the danger of being tangled in the wire as it passes toward the block. Such an entanglement may result in the loss of a hand or other serious injury.

Electrical Department

Frequency rates: Period 1, 47.1; period 2, 40.3; period 3, 20.5.

Severity rates: Period 1, 6.3; period 2, 7.2; period 3, 3.0.

The year 1925 registers both rates as declining, and in 1926 the decline continued.

The rather high severity of this department is related to the dangers incident to handling circuits of high voltage.

Mechanical Department

Frequency rates: Period 1, 62.7; period 2, 41.3; period 3, 23.7.

Severity rates: Period 1, 4.0; period 2, 3.5; period 3, 2.8.

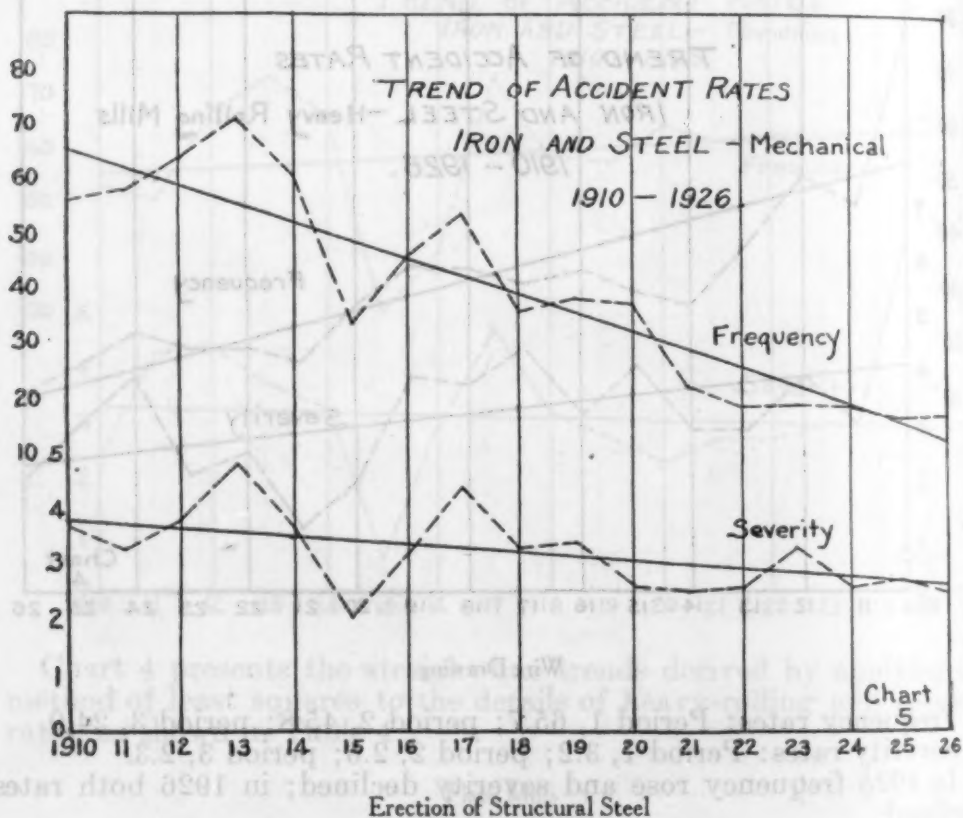
In 1925 frequency declined and severity rose slightly. In 1926 frequency rose and severity declined. These movements are shown in Chart 5.

Yards

Frequency rates: Period 1, 50.8; period 2, 37.5; period 3, 26.4.

Severity rates: Period 1, 6.0; period 2, 6.1; period 3, 4.1.

In 1925 both frequency and severity increased, while in 1926 both declined. High severity rates in this department have been noticeable throughout the progress of this study.



Frequency rates: Period 1, 121.7; period 2, 107.2; period 3, 97.5.

Severity rates: Period 1, 31.4; period 2, 22.3; period 3, 19.9.

In 1925 both rates declined, but in 1926 both rates rose, severity reaching a point higher than in any previous year. In only one other year (1917) has the number of deaths been as great as in 1926. In that year the exposure was greater, with the result that the rate was markedly lower. The rates are so constantly high as to indicate, in spite of the small exposure, a very serious degree of hazard. The above are the more important departments in the industry. As a rule they show a condition of progress, not so rapid as in the earlier years but substantial and encouraging.

TABLE 4.—ACCIDENTS AND ACCIDENT RATES IN THE IRON AND STEEL INDUSTRY, 1907 TO 1926, BY DEPARTMENTS AND BY YEARS AND 5-YEAR PERIODS

The industry

Year or period	Full-year workers	Number of cases				Accident frequency rates (per 1,000,000 hours' exposure)				Accident severity rates (per 1,000 hours' exposure)			
		Death	Perma-nent disa-bility	Tem-porary disa-bility	Total	Death	Perma-nent disa-bility	Tem-porary disa-bility	Total	Death	Perma-nent disa-bility	Tem-porary disa-bility	Total
1907.....	27,632	61	106	6,530	6,697	0.7	1.3	78.8	80.8	4.4	1.7	1.1	7.2
1910.....	202,157	327	848	44,108	45,283	.5	1.4	72.7	74.7	3.2	1.2	.8	5.2
1911.....	231,544	204	931	34,676	35,811	.3	1.3	49.9	51.5	1.8	1.1	.6	3.5
1912.....	300,992	348	1,241	54,575	56,164	.4	1.4	60.4	62.2	2.3	1.1	.8	4.2
1913.....	319,919	426	1,200	55,556	57,182	.4	1.3	57.9	59.6	2.7	.9	.7	4.3
1914.....	256,290	219	860	37,390	38,469	.3	1.1	48.6	50.0	1.7	.9	.6	3.2
1915.....	116,224	87	372	13,481	13,940	.2	1.1	38.7	40.0	1.5	.7	.5	2.7
1916.....	166,646	159	728	20,655	21,542	.3	1.4	41.3	43.0	1.9	1.0	.6	3.5
1917.....	410,852	523	1,268	57,094	58,885	.4	1.0	46.3	47.7	2.5	.9	.6	4.0
1918.....	474,435	543	1,253	54,293	56,089	.4	.9	38.1	39.4	2.3	.8	.5	3.6
1919.....	377,540	419	848	41,009	42,276	.4	1.0	40.2	41.6	2.2	.8	.6	3.6
1920.....	442,685	327	1,084	49,482	50,893	.2	.8	37.3	38.3	1.5	.8	.4	2.7
1921.....	237,004	156	527	21,279	21,962	.2	.7	29.9	30.8	1.3	.7	.5	2.5
1922.....	335,900	236	878	32,120	33,234	.2	.9	31.9	33.0	1.4	.8	.5	2.7
1923.....	434,693	314	1,188	41,766	43,268	.2	.9	32.1	33.2	1.4	.8	.5	2.7
1924.....	389,438	312	1,133	34,481	35,920	.3	1.0	29.5	30.8	1.6	.9	.5	3.0
1925.....	445,223	207	1,091	36,404	37,772	.2	.8	27.3	28.3	1.2	.8	.4	2.5
1926.....	436,692	323	1,202	31,667	33,230	.2	.9	24.2	25.3	1.7	.8	.4	2.9
1910-1914.....	1,310,911	1,524	5,080	226,305	232,954	.4	1.3	57.5					

TABLE 4.—ACCIDENTS AND ACCIDENT RATES IN THE IRON AND STEEL INDUSTRY, 1907 TO 1926, BY DEPARTMENTS AND BY YEARS AND 5-YEAR PERIODS—Contd.

Bessemer converters—Continued

Year or period	Full-year workers	Number of cases				Accident frequency rates (per 1,000,000 hours' exposure)				Accident severity rates (per 1,000 hours' exposure)			
		Death	Perma-nent disa-bility	Tem-porary disa-bility	Total	Death	Perma-nent disa-bility	Tem-porary disa-bility	Total	Death	Perma-nent disa-bility	Tem-porary disa-bility	Total
1922.....	4,778	2	8	233	243	0.1	0.6	16.3	17.8	0.8	0.5	0.3	1.6
1923.....	6,080	6	20	367	393	.3	1.1	20.1	21.5	2.0	.5	.3	3.0
1924.....	4,943	7	10	274	291	.5	.7	18.5	19.7	2.8	.6	.3	3.7
1925.....	4,834	9	10	115	134	.6	.7	7.9	9.2	.7	3.7	.2	4.6
1926.....	4,526	6	19	178	203	.4	1.3	13.1	14.8	2.7	4.7	.3	7.7
1910-1914.....	28,101	57	146	7,367	7,570	.7	1.7	87.4	89.8	4.0	1.1	1.3	6.4
1915-1919.....	25,645	62	112	4,262	4,436	.8	1.5	55.4	57.7	4.8	1.1	1.0	6.9
1920-1924.....	26,147	24	53	1,876	1,953	.3	.7	23.9	24.9	1.8	.4	.4	2.6

Open-hearth furnaces

1907.....	2,937	14	14	908	936	1.6	1.6	101.3	104.5	9.3	4.0	1.1	14.4
1910.....	9,739	29	53	3,028	3,110	1.0	1.8	103.6	106.4	6.0	2.4	1.4	9.8
1911.....	10,718	18	45	1,890	1,953	.6	1.4	58.8	60.8	3.4	1.1	.9	5.4
1912.....	17,355	47	99	4,039	4,185	.9	1.9	77.6	80.4	5.3	1.9	1.0	8.2
1913.....	20,604	35	95	4,368	4,498	.6	1.5	70.7	72.8	3.4	1.4	1.0	5.8
1914.....	12,877	14	41	2,484	2,539	.4	1.1	64.3	65.8	2.2	1.5	.8	4.5
1915.....	5,969	8	20	832	860	.4	1.1	46.5	48.0	2.7	.9	.6	4.2
1916.....	9,654	12	37	1,458	1,507	.4	1.3	50.3	52.0	2.5	.8	.9	4.2
1917.....	21,457	47	86	3,187	3,320	.7	1.3	49.5	51.5	4.4	1.2	.8	6.4
1918.....	26,410	71	103	3,983	4,157	.9	1.3	50.3	52.5	5.4	1.4	1.1	7.9
1919.....	22,685	53	71	3,103									

TABLE 4.—ACCIDENTS AND ACCIDENT RATES IN THE IRON AND STEEL INDUSTRY, 1907 TO 1926, BY DEPARTMENTS AND BY YEARS AND 5-YEAR PERIODS—Contd.

Bar mills

Year or period	Full-year workers	Number of cases				Accident frequency rates (per 1,000,000 hours' exposure)				Accident severity rates (per 1,000 hours' exposure)			
		Death	Perma-nent disa-bility	Tempo-rary disa-bility	Total	Death	Perma-nent disa-bility	Tempo-rary disa-bility	Total	Death	Perma-nent disa-bility	Tempo-rary disa-bility	Total
1915.....	3,232	1	7	577	585	0.1	0.7	50.5	60.3	0.6	0.6	0.7	1.9
1916.....	3,042	4	11	783	798	.4	1.2	85.8	87.4	2.6	.5	1.1	4.2
1917.....	7,472	8	34	1,940	1,982	.4	1.5	86.5	88.4	2.1	1.0	1.0	4.0
1918.....	5,734	6	18	756	780	.3	1.0	43.9	45.2	2.1	.7	.7	3.5
1919.....	4,601	1	7	689	697	.1	.5	49.9	50.5	.4	.5	.7	1.6
1920.....	3,880	1	5	525	531	.1	.4	44.8	45.3	.5	.2	.5	1.2
1921.....	1,912	-----	5	228	233	-----	.9	39.8	40.7	-----	1.0	.6	1.6
1922.....	3,780	7	10	392	409	.6	.9	34.6	36.1	3.7	.8	.5	5.0
1923.....	4,003	-----	17	443	460	-----	1.4	36.4	37.8	-----	.7	.6	1.3
1924.....	4,093	2	7	285	294	.2	.6	23.2	24.0	1.0	.2	.5	1.7
1925.....	4,471	2	13	324	339	.2	1.0	24.2	25.3	.9	.9	.4	2.2
1926.....	3,042	1	10	146	157	.1	1.1	16.0	17.2	.7	.4	.3	1.4
1915-1919.....	24,081	20	77	4,745	4,842	.3	1.1	65.6	67.0	1.7	.7	.7	3.1
1920-1924.....	17,666	10	44	1,869	1,923	.2	.8	35.3	36.3	1.1	.6	.5	2.2

Heavy-rolling mills

1907.....	4,556	8	10	874	892	0.6	0.7	64.0	65.3	3.5	0.3	1.0	4.8
1910.....	9,442	19	57	2,167	2,243	.7	2.0	76.5	79.2	4.0	1.5	1.0	6.5
1911.....	12,409	9	48	1,636	1,693	.2	1.3	43.9	45.4	1.4	.9	.7	3.0
1912.....	16,258	20	41	2,395	2,456	.4	.8	49.1	50.3	2.3	.9	.7	3.9
1913.....	17,569	16	60	1,910	1,986	.3	1.1	36.2	37.6	1.7	.6	.6	2.9
1914.....	11,985	10	55	899	9								

TABLE 4.—ACCIDENTS AND ACCIDENT RATES IN THE IRON AND STEEL INDUSTRY, 1907 TO 1920, BY DEPARTMENTS AND BY YEARS AND 5-YEAR PERIODS—Contd.

Puddling mills

Year or period	Full-year workers	Number of cases				Accident frequency rates (per 1,000,000 hours' exposure)				Accident severity rates (per 1,000 hours' exposure)			
		Death	Perma-nent disability	Tem-porary disability	Total	Death	Perma-nent disability	Tem-porary disability	Total	Death	Perma-nent disability	Tem-porary disability	Total
1917.....	4,129	1	10	572	583	0.1	0.8	46.2	47.1	0.5	0.6	0.6	1.7
1918.....	2,712	3	4	370	377	.4	.5	45.5	46.4	2.2	.4	.6	3.2
1919.....	1,619	—	1	140	141	—	.2	28.8	29.0	—	.1	.4	.5
1920.....	2,007	1	10	243	254	.2	1.7	40.3	42.2	1.0	.8	.6	2.4
1923.....	1,620	—	3	280	283	—	.6	57.6	58.2	—	1.1	1.0	2.1
1924.....	814	—	4	156	160	—	1.6	63.9	65.5	—	1.2	1.2	2.4
1925.....	1,108	—	6	166	172	—	1.8	49.9	51.7	—	2.8	.9	3.7
1926.....	1,591	1	5	204	210	.2	1.0	42.5	43.7	1.2	1.5	.8	3.6
1917-1919.....	8,460	4	15	1,082	1,101	.2	.6	42.6	43.4	.9	.4	.6	1.9
1920-1924.....	4,406	—	9	797	806	—	.7	60.3	61.0	—	.8	1.1	1.9

Sheet mills

1907.....	2,211	2	8	274	284	0.3	1.2	43.3	44.8	1.8	1.9	0.4	4.1
1910.....	18,501	28	52	3,310	3,390	.5	.9	59.6	61.0	2.9	.8	.6	4.3
1911.....	29,710	9	71	3,625	3,705	.1	.8	40.7	41.6	.7	.7	.4	1.8
1912.....	32,087	19	67	5,497	5,583	.2	.7	57.1	58.0	1.2	.7	.7	2.6
1913.....	25,938	21	67	3,717	3,805	.3	.9	47.8	49.0	1.6	.5	.6	2.7
1914.....	22,187	11	51	3,113	3,175	.2	.8	46.8	47.8	.9	.5	.6	2.0
1915.....	16,266	7	23	1,901	1,931	.1	.5	39.0	39.6	.9	.3	.5	1.7
1916.....	24,722	13	62	2,655	2,730	.2	.8	35.8	36.8	.6	.5	.5	1.6
1917.....	26,855	11	38	2,687	2,736	.1	.5	33.4	34.0	.8	.6	.5	1.9
1918.....	17,278	3	17	937	957	.1	.3	18.1	18.5	.3	.5	.2	1.0
1919.....	19,214	3	32	1,854	1,889	.1	.6	32.0	32.7	.3	.4	.4	1.1
1920.....	24,279	14	59	2,979	3,052	.2	.8	40.1	41.0	1.2	.7	.8	2.3
1921.....	15,845	5	38	1,702	1,745	.1	.8	35.8	36.7	.6	.5	.5	1.6
1922.....	24,391	10	66	2,951	3,027	.1	.9	40.3	41.3	.8	.8	.9	2.5
1923.....	29,814	14	61	2,390	2,465	.2	.7	27.6	28.5	1.0	.7	.5	2.2

TABLE 4.—ACCIDENTS AND ACCIDENT RATES IN THE IRON AND STEEL INDUSTRY, 1907 TO 1926, BY DEPARTMENTS AND BY YEARS AND 5-YEAR PERIODS—Contd.

Tube mills—Continued

Year or period	Full-year workers	Number of cases				Accident frequency rates (per 1,000,000 hours' exposure)				Accident severity rates (per 1,000 hours' exposure)			
		Death	Perma- nent disa- bility	Tempo- rary disa- bility	Total	Death	Perma- nent disa- bility	Tempo- rary disa- bility	Total	Death	Perma- nent disa- bility	Tempo- rary disa- bility	Total
1914.....	13,906	7	39	1,195	1,241	0.2	0.9	28.6	29.7	1.0	0.6	0.4	2.0
1915.....	7,109	2	21	182	205	.1	1.0	8.5	9.6	.6	.6	.2	1.4
1916.....	11,355	2	26	425	453	.1	.8	12.5	13.4	.4	.3	.3	1.0
1917.....	19,819	17	51	1,967	2,035	.3	.9	33.1	34.3	1.7	.5	.4	2.6
1918.....	18,499	8	41	1,127	1,176	.1	.7	20.3	21.1	.9	.4	.3	1.6
1919.....	18,326	9	39	1,127	1,172	.2	.7	20.4	21.3	1.0	.6	.3	1.9
1920.....	22,666	13	71	2,166	2,250	.2	1.0	31.9	33.1	1.1	.5	.5	2.1
1921.....	14,622	4	35	840	879	.1	.8	19.1	20.0	.5	.5	.4	1.4
1922.....	19,535	6	40	1,332	1,378	.1	.7	22.7	23.5	.6	.6	.4	1.6
1923.....	24,766	8	54	1,292	1,354	.1	.7	17.4	18.2	.6	.6	.3	1.5
1924.....	22,655	14	68	1,185	1,267	.2	1.0	17.2	18.4	1.2	.6	.3	2.1
1925.....	25,511	10	64	1,142	1,216	.1	.8	14.9	15.9	.8	.6	.3	1.7
1926.....	32,089	9	95	1,524	1,628	.1	1.0	15.9	17.0	.6	.7	.2	1.5
1910-1914.....	73,338	36	249	8,623	8,908	.2	1.1	39.2	40.5	1.0	.7	.5	2.2
1915-1919.....	75,108	38	178	4,825	5,041	.2	.8	21.4	22.4	1.0	.5	.3	1.8
1920-1924.....	104,577	45	268	6,815	7,128	.1	.9	21.7	22.7	.9	.6	.4	1.9

Unclassified rolling mills

1910.....	14,484	15	49	4,861	4,925	0.3	1.1	112.3	113.7	2.1	1.6	1.3	5.0
1911.....	21,231	16	76	3,388	3,480	.3	1.2	53.2	54.7	1.5	1.1	.7	3.3
1912.....	22,909	16	76	4,660	4,752	.2	1.1	67.8	69.1	1.5			

TABLE 4.—ACCIDENTS AND ACCIDENT RATES IN THE IRON AND STEEL INDUSTRY, 1907 TO 1926, BY DEPARTMENTS AND BY YEARS AND 5-YEAR PERIODS—Contd.

Forge shops

Year or period	Full-year workers	Number of cases				Accident frequency rates (per 1,000,000 hours' exposure)				Accident severity rates (per 1,000 hours' exposure)			
		Death	Perma-nent disa-bility	Tem-porary disa-bility	Total	Death	Perma-nent disa-bility	Tem-porary disa-bility	Total	Death	Perma-nent disa-bility	Tem-porary disa-bility	Total
1917	3,881	3	15	917	935	0.3	1.3	78.8	80.4	1.5	1.6	1.3	4.4
1918	6,408	4	26	1,009	1,039	.2	1.4	53.2	54.8	1.2	1.1	.7	3.0
1919	2,169	2	4	257	263	.3	.6	39.5	40.4	1.8	.3	.6	2.7
1920	2,197		5	380	385		.8	58.6	59.4		.8	.7	1.5
1921	902	1	3	107	111	.4	1.1	39.5	41.0	2.2	1.0	.7	3.9
1922	1,514	2	8	233	243	.4	1.8	51.3	53.5	2.6	1.7	.9	5.2
1923	2,049	1	9	309	319	.2	1.5	50.2	51.9	1.0	.9	.7	2.6
1924	2,272		9	567	576		1.3	83.2	84.5		1.5	1.2	2.7
1925	3,794	3	11	893	907	.3	1.0	78.5	79.7	1.6	.9	.8	3.3
1926	1,790		7	263	270		1.3	48.7	50.0		.4	.7	1.1
1910-1914	6,249	8	19	1,080	1,107	.4	1.0	57.6	59.0	2.6	.6	.7	3.9
1915-1919	12,667	9	45	2,189	2,243	.2	1.2	57.6	59.0	1.4	1.1	.9	3.4
1920-1924	8,901	4	34	1,596	1,634	.1	1.3	59.8	61.2	.9	1.2	.9	3.0

Wire drawing

1910	10,370	5	84	2,323	2,412	0.2	2.7	74.7	77.6	1.0	2.6	0.7	4.3
1911	11,819	4	89	2,270	2,363	.1	2.3	59.0	61.4	.6	2.0	.6	3.2
1912	13,059	4	104	2,627	2,735	.1	2.7	67.1	69.9	.6	2.5	.7	3.8
1913	12,769	6	59	2,542	2,607	.2	1.5	66.4	68.1	.9	1.1	.7	2.7
1914	11,468	2	47	1,742	1,791	.1	1.4	50.6	52.1	.4	1.3	.5	2.2
1915	7,859	1	62	1,831	1,894	.3	2.6	77.7	80.3	.3	2.4	.8	3.5
1916	9,551	4	104	1,764	1,872	.1	3.6	61.6					

TABLE 4.—ACCIDENTS AND ACCIDENT RATES IN THE IRON AND STEEL INDUSTRY, 1907 TO 1926, BY DEPARTMENTS AND BY YEARS AND 5-YEAR PERIODS—Contd.

Mechanical department

Year or period	Full-year workers	Number of cases				Accident frequency rates (per 1,000,000 hours' exposure)				Accident severity rates (per 1,000 hours' exposure)			
		Death	Perma- nent disa- bility	Tem- porary disa- bility	Total	Death	Perma- nent disa- bility	Tem- porary disa- bility	Total	Death	Perma- nent disa- bility	Tem- porary disa- bility	Total
1908	1,619	4	7	430	441	0.8	1.4	89.1	91.3	4.9	0.6	1.1	6.6
1909	15,927	18	56	2,618	2,692	.4	1.2	54.8	56.4	2.3	.9	.5	3.7
1910	17,863	13	80	3,015	3,108	.2	1.5	56.3	58.0	1.5	1.1	.7	3.3
1911	21,591	19	95	4,040	4,154	.3	1.5	62.4	64.2	1.8	1.2	.8	3.8
1912	24,009	36	103	4,972	5,111	.5	1.4	69.0	70.9	2.9	1.0	.9	4.8
1913	17,772	18	60	3,149	3,227	.3	1.1	59.1	60.5	2.0	1.0	.7	3.7
1914	5,987	3	27	573	603	.2	1.5	31.9	33.6	1.0	.7	.4	2.1
1915	16,920	9	86	2,245	2,340	.2	1.7	44.2	46.1	1.1	1.5	.6	3.2
1916	33,328	43	134	5,201	5,378	.4	1.3	52.0	53.7	2.6	1.0	.8	4.4
1917	58,002	54	162	6,054	6,270	.3	.9	34.8	36.0	1.9	1.0	.4	3.3
1918	40,009	45	83	4,483	4,611	.4	.7	36.8	37.9	2.2	.7	.5	3.4
1919	34,648	26	68	3,767	3,861	.3	.7	36.2	37.2	1.5	.6	.5	2.6
1920	25,036	21	41	1,703	1,775	.3	.5	22.7	23.6	1.7	.5	.4	2.5
1921	30,324	25	75	1,626	1,726	.3	.8	17.9	19.0	1.6	.7	.3	2.6
1922	37,449	37	102	2,045	2,184	.3	.9	18.2	19.4	2.0	1.0	.3	3.3
1923	31,331	29	80	1,855	1,964	.3	.8	17.8	18.9	1.7	.6	.3	2.6
1924	36,666	31	71	1,717	1,819	.3	.7	15.6	16.6	1.7	.7	.3	2.7
1925	38,953	32	74	1,887	1,993	.3	.6	16.1	17.0	1.6	.6	.3	2.5
1910-1914	97,161	104	392	17,794	18,292	.4	1.3	61.0	62.7	2.1	1.1	.8	4.0
1915-1919	154,846	154</											

TABLE 4.—ACCIDENTS AND ACCIDENT RATES IN THE IRON AND STEEL INDUSTRY, 1907 TO 1926, BY DEPARTMENTS AND BY YEARS AND 5-YEAR PERIODS—Contd.

Erection of structural steel

Year or period	Full-year workers	Number of cases				Accident frequency rates (per 1,000,000 hours' exposure)				Accident severity rates (per 1,000 hours' exposure)			
		Death	Perma- nent disability	Tempo- rary disability	Total	Death	Perma- nent disability	Tempo- rary disability	Total	Death	Perma- nent disability	Tempo- rary disability	Total
1915.....	803	8	7	251	266	3.3	2.9	104.2	110.4	19.9	4.3	1.2	25.4
1916.....	1,011	10	3	251	264	3.3	1.0	82.7	87.0	19.8	1.7	1.7	23.2
1917.....	1,156	12	15	442	469	3.5	4.3	127.5	135.3	20.8	4.0	2.2	27.0
1918.....	1,234	10	3	364	377	2.7	.8	98.3	101.8	16.2	2.0	1.4	19.6
1919.....	775	5	7	214	226	2.2	3.0	86.8	92.0	12.9	1.3	1.3	15.5
1920.....	637	6	12	204	222	3.3	6.6	111.8	121.7	19.7	3.7	2.5	25.9
1921.....	573	5	4	168	177	2.9	2.3	97.8	103.0	17.5	1.1	1.7	20.2
1922.....	595	5	2	129	136	2.8	1.1	72.3	76.2	16.8	2.5	1.8	21.1
1923.....	912	3	7	234	244	1.1	2.6	85.5	89.2	6.6	1.6	1.2	9.4
1924.....	1,009	10	10	291	311	3.3	3.3	96.1	102.7	19.8	3.4	1.9	25.1
1925.....	937	9	3	188	200	3.2	1.1	66.9	71.2	19.2	2.2	1.0	22.4
1926.....	774	11	5	180	196	4.8	2.2	78.3	85.3	28.4	2.3	1.3	32.0
1912-1914.....	2,157	26	24	738	788	4.0	3.7	114.0	121.7	24.1	5.5	1.8	31.4
1915-1919.....	4,979	45	35	1,522	1,602	3.0	2.3	101.9	107.2	18.1	2.6	1.6	22.3
1920-1924.....	3,726	29	35	1,026	1,090	2.6	3.1	91.8	97.5	15.6	2.5	1.8	19.9

Coke ovens²

1915.....	1,648	2	4	128	134	0.4	0.8	25.9	27.1	2.4	0.6	0.3	3.3
1916.....	2,195	5	6	150	161	.8	.9	22.7	24.4	4.6	.5	.4	5.5
1917.....	6,641	26	10	508	544	1.3	.5	25.5	27.3	7.8	.5	.4	8.7
1918.....	9,395	21	14	662	697	.7	.5	23.5	24.7	4.5	.5	.4	5.4
1919.....	9,022	12	10	647	669	.4	.4	23.9	24.7	2.7	.6	.4	3.7
1920.....	8,620	6	11	518	535	.2	.4	10.0	10.6	1.4	.7	.3	2.4
1921.....	5,768	2	4	182	188	.1	.2	10.5	10.8	.7	.3	.2	1.1
1922.....	6,554	2	1	207	210	.1	.1	10.5	10.7	.6	.2	.2	1.0
1923.....	8,961	7	14	416	437	.3	.5	15.5	16.3	1.6	1.1	.3	3.0
1924.....	7,506	9	15</										

TABLE 4.—ACCIDENTS AND ACCIDENT RATES IN THE IRON AND STEEL INDUSTRY, 1907 TO 1926, BY DEPARTMENTS AND BY YEARS AND 5-YEAR PERIODS—Contd.

Miscellaneous departments—Continued

Year or period	Full-year workers	Number of cases				Accident frequency rates (per 1,000,000 hours' exposure)				Accident severity rates (per 1,000 hours' exposure)			
		Death	Perma- nent disability	Tempo- rary disability	Total	Death	Perma- nent disability	Tempo- rary disability	Total	Death	Perma- nent disability	Tempo- rary disability	Total
<i>Car wheels</i>													
1915	390		1	25	26		0.9	21.4	22.3		0.3	0.7	1.0
1916	734	2	2	348	352	0.9	.9	158.0	159.0	5.4	1.0	2.1	8.5
1917	1,296	3	4	250	257	.8	1.0	64.3	66.1	4.6	.4	.9	5.9
1918	1,866	1		337	338	.2		60.2	60.4	1.1		.6	1.7
1919	1,619	1	11	353	365	.2	2.3	72.6	75.1	1.2	1.0	1.0	3.2
1920	1,215		4	170	174		1.0	46.7	47.7		.9	.6	1.5
1921	552	1	2	92	95	.6	1.2	56.7	58.6	3.6	.5	.7	4.9
1922	1,102			78	78			23.6	23.6			.6	.6
1923	1,099	1	1	116	118	.3	.3	35.2	35.8	1.8	.2	.8	2.8
1924	1,083	1	3	137	141	.3	.9	42.2	43.4	1.8	.3	.8	2.9
1925	931		3	69	72		1.1	24.7	25.8		1.3	.6	1.9
1926	792		3	32	35		1.2	13.3	14.5		1.6	.4	2.0
1912-1914	2,367	3	15	609	627	.4	2.1	85.8	88.3	2.5	.9	1.3	4.7
1915-1919	5,904	7	18	1,313	1,338	.4	1.0	74.1	75.5	2.4	.5	1.0	3.9
1920-1924	5,050	3	10	595	608	.2	.7	30.3	40.2	1.2	.4	.7	2.3
<i>Docks and ore yards</i>													
1915	115		2	7	9		5.8	20.3	26.1		2.3	0.1	2.4
1916	195	3	2	16	21	5.1	3.4	27.4	35.9	30.8	7.3	.5	38.6
1917	353	2	1	78	81	1.9	.9	73.6	76.4	11.3	.7	1.0	13.0
1918	368	1	1	35	37	.9	.9	31.7	33.5	5.4	.3	.3	6.0
1919	352												

TABLE 4.—ACCIDENTS AND ACCIDENT RATES IN THE IRON AND STEEL INDUSTRY, 1907 TO 1926, BY DEPARTMENTS AND BY YEARS AND 5-YEAR PERIODS—Contd.

Miscellaneous departments—Continued

Year or period	Full-year workers	Number of cases				Accident frequency rates (per 1,000,000 hours' exposure)				Accident severity rates (per 1,000 hours' exposure)			
		Death	Perma- nent disa- bility	Tem- porary disa- bility	Total	Death	Perma- nent disa- bility	Tem- porary disa- bility	Total	Death	Perma- nent disa- bility	Tem- porary disa- bility	Total
<i>Nails and staples</i>													
1915.....	1,546	1	12	181	194	0.2	2.6	39.0	41.8	1.3	1.7	0.3	3.3
1916.....	1,993	—	10	236	246	—	.2	39.5	39.7	—	1.0	1.4	2.4
1917.....	2,323	1	16	184	201	.1	2.3	26.4	28.8	.9	2.1	.3	3.3
1918.....	1,916	—	10	123	133	—	1.7	21.4	23.1	—	1.2	.2	1.4
1919.....	2,040	—	8	58	66	—	1.3	9.5	10.8	—	.5	.1	.6
1920.....	2,364	—	8	164	172	—	1.1	23.1	24.2	—	.8	.1	.9
1921.....	1,718	1	6	91	98	.2	1.2	17.7	19.0	1.2	.6	.3	2.1
1922.....	2,366	1	10	121	132	.1	1.4	17.0	18.5	.8	1.3	.3	2.4
1923.....	3,404	1	7	131	139	.1	.9	17.4	18.5	.8	1.2	.2	2.2
1924.....	1,939	—	6	81	87	—	1.0	13.9	14.9	—	1.0	.2	1.2
1925.....	1,925	—	6	88	94	—	1.0	15.2	16.2	—	1.6	.2	1.8
1926.....	2,658	—	2	100	102	—	.3	16.4	16.7	—	.1	.2	.3
1915-1919.....	9,818	2	56	782	840	.1	1.9	26.5	28.5	.4	1.3	.3	2.0
1920-1924.....	10,890	3	37	588	628	.1	1.1	18.0	19.2	.6	1.0	.2	1.8
<i>Hot mills</i>													
1923.....	6,374	2	9	820	831	0.1	0.5	42.9	43.5	0.6	0.4	0.5	1.5
1924.....	5,789	1	7	634	642	.1	.4	36.6	37.1	.3	.5	.6	1.4
1925.....	7,773	4	19	913	936	.2	.8	39.1	40.1	1.0	.7	.6	2.4
1926.....	4,319	4	15	834	853	.3	1.2	64.2	65.7	3.9	1.3	1.6	6.8
1920-1924.....	30,018	11	39	3,223	3,273	.1	.4	35.8	36.3	.7	.4	.5	1.6
<i>Cold rolling</i>													
1926.....	1,824	—	2	211	213	—	0.4	38.3	38.7	—	0.8	0.4	1.2
<i>Unclassified</i>													
1915.....	21,547	16	41	2,749	2,806	0.2	0.6	42.5	43.3	1.5	0.6	0.6	2.7
1916.....</													

Quarry Accidents in the United States in 1925

A SLIGHT improvement in the accident record of the stone-quarrying industry is indicated by the recent report (Bulletin 286) of the United States Bureau of Mines on quarry accidents in the United States during the calendar year 1925. In this industry, which employed a total of 91,872 men (about 2 per cent less than in 1924) and worked an average of 273 days, the number of fatal accidents was 149, or 11 more than in 1924, with a fatality rate of 1.78 per 1,000 300-day workers as compared to 1.63, while the number of nonfatal injuries was 14,165, or 4.1 per cent less than in 1924, with a rate of 169.67 as compared to 175.03 in 1924. The exposure in 1925 was about 1 per cent less than in 1924.

The general improvement in accident-prevention work in quarries, so far as fatalities is concerned, the report declares, is indicated by the downward trend of the death rate when considered in five-year periods. During 1911 to 1915 this rate was 2.19, during the next five years it was 2.10, and during the last five years, including 1925, it was 1.78.

The severity rate is not actually worked out in the report, except for the five-year period 1921 to 1925, but data are given so that a rate may be determined. This rate appears to be 3.57 for the fatal cases and 2.39 for the nonfatal cases in 1925, and 3.27 and 2.26, respectively, in 1924. These rates are computed on an estimated number of days lost (since the report does not show the amount of time lost as the result of individual accidents but does classify the accidents as to degree of disability) by using the standard adopted by the International Association of Industrial Accident Boards and Commissions¹ for fatal and permanent cases—namely, 6,000 days each, 800 days as the average time lost in permanent partial disability cases² and 30 days and 4 days as the average time lost in each case of temporary disability lasting, respectively, more than 14 days and from 1 to 14 days.

Of the total number of accidents reported during 1925, 149 (1.04 per cent) resulted in death, 452 (3.16 per cent) caused permanent disability, 2,627 (18.35 per cent) caused temporary disability exceeding 14 days, and 11,086 (77.45 per cent) caused loss of time exceeding the remainder of the day of the accident but not more than 14 days.

The statistics in this report are presented in considerable detail by kind of quarry, by cause of accident, by State, by year, etc., and similar data are also given for the quarries classified as dimension-stone and nondimension-stone quarries. The accident rates for each year since 1916 in the former group of quarries have been consistently lower than in the other group. In 1925 these rates were: Dimension-stone quarries (not including outside plants)—Fatality rate, 1.94 per 1,000 300-day workers, and nonfatality rate, 181; nondimension-stone quarries (not including outside plants)—Fatality rate, 2.59, and nonfatality rate, 193.

¹ United States Bureau of Labor Statistics. Bulletin No. 276: Standardization of industrial accident statistics. Washington, 1920, p. 18.

² Reported by the California Industrial Accident Commission.

The following table summarizes the accident experience in all quarries during the years 1924 and 1925:

ACCIDENT EXPERIENCE OF QUARRIES IN THE UNITED STATES DURING 1924 AND 1925

Year	Number employed	Equivalent 300-day workers	Accidents			Frequency rate				Severity rate (per 1,000 days' lost)		
			Fatal	Permanent	Temporary	Per 1,000 300-day workers		Per 1,000,000 man-hours		Fatal	Non-fatal	Total
						Fatal	Non-fatal	Fatal	Non-fatal			
1924.....	94,242	84,426	138	470	14,307	1.63	175.03	0.54	58.34	3.27	2.26	5.53
1925.....	91,872	83,487	149	452	13,713	1.78	169.67	.50	56.56	3.57	2.39	5.96

Falls or slides of rock or overburden caused the greatest number of deaths (34 of the 101) to men working inside the pits, while handling rock at the face caused the greatest number of nonfatal accidents (1,639 of the 8,632, or 19 per cent) occurring inside the pits. Flying objects caused the greatest number of nonfatal injuries, 19.9 per cent, which took place outside the pits, while machinery was responsible for 27.1 per cent of the deaths occurring in outside operations.

In 1925 the fatality rate per 1,000 300-day workers was highest in Maryland quarries, being 5.09, and in 1924 it was highest in Connecticut, being 5.29. The nonfatal rate was highest in Massachusetts (341.59) in 1925, and highest in Minnesota (315.09) in 1924.

The report contains a section dealing with the relative hazard of large and small quarries, in which all quarries employing less than 25 workers are placed in the latter grouping. It appears that both the fatal and nonfatal rates were somewhat higher for the small operations than for the large ones. In 1925 the fatality rate per 1,000 300-day workers in small quarries was 3.65, and in large quarries it was 1.97, while the nonfatal injury rate was, respectively, 245.29 and 183.55.

Comparative Accident Experience of Large Group of Plants in 1925 and 1926

THE accident experience of 1,725 of the plants holding membership in the National Safety Council is set forth in an article in the National Safety News for September, 1927. This represents an increase of 494 (40 per cent) over the number reporting in 1925. The plants are classified into 16 industrial groups or sections. The accident frequency rate (per 1,000,000 hours' exposure) of all plants reporting is shown to be 31.87 as compared with 30.6 in 1925, while the severity rate (days lost per 1,000 hours' exposure) was 2.50 and 2.02, respectively. One out of every 13 workers suffered a lost-time injury, and the average time lost per injury was 78 days.

The experience of 687 plants reporting both in 1925 and 1926 shows a reduction in frequency and severity rates, the former being lowered more than 13 per cent and the latter about 11 per cent.

The following table gives the data for these 687 plants, classified by industrial group, for 1925 and 1926.

ACCIDENT EXPERIENCE OF 687 PLANTS BELONGING TO THE NATIONAL SAFETY COUNCIL, 1925 AND 1926

Industry group	Number of plants	Total hours worked		Lost-time accidents	
		1925	1926	1925	1926
Automotive.....	56	193, 170, 392	292, 250, 161	6, 012	5, 789
Cement.....	114	95, 164, 043	91, 246, 572	2, 480	2, 079
Chemical.....	52	65, 660, 528	63, 908, 310	1, 763	1, 688
Construction.....	30	22, 707, 156	26, 810, 713	1, 549	1, 860
Metals.....	172	366, 980, 532	420, 892, 130	14, 282	14, 479
Packers and tanners.....	9	10, 297, 413	10, 244, 703	279	694
Paper and pulp.....	79	83, 444, 770	91, 511, 224	2, 957	2, 926
Petroleum.....	14	202, 568, 652	216, 977, 595	5, 230	5, 554
Power press.....	66	134, 925, 769	158, 204, 457	3, 743	3, 335
Quarry.....	11	9, 140, 291	9, 590, 566	472	467
Textile.....	24	62, 459, 152	62, 875, 420	832	836
Woodworking.....	60	38, 070, 771	37, 260, 639	1, 589	1, 418
Total.....	687	1, 284, 589, 469	1, 481, 772, 400	41, 188	41, 126

Industry group	Days lost		Accident frequency rates (per 1,000,000 hours' exposure)		Accident severity rates (per 1,000 hours' exposure)	
	1925	1926	1925	1926	1925	1926
Automotive.....	305, 578	329, 953	31.1	19.8	1.58	1.13
Cement.....	486, 385	349, 856	26.0	22.8	5.11	3.83
Chemical.....	206, 667	204, 524	26.9	26.4	3.15	3.20
Construction.....	165, 840	187, 962	68.2	69.4	7.31	7.01
Metals.....	797, 838	862, 537	38.9	34.4	2.17	2.06
Packers and tanners.....	12, 039	20, 180	27.1	67.8	1.17	2.83
Paper and pulp.....	158, 246	180, 105	35.4	32.0	1.90	1.97
Petroleum.....	445, 494	455, 865	25.8	25.6	2.20	2.10
Power press.....	172, 539	204, 229	27.8	21.1	1.28	1.29
Quarry.....	66, 289	71, 916	51.6	48.7	7.25	7.50
Textile.....	26, 106	33, 011	13.3	13.3	.42	.53
Woodworking.....	88, 647	103, 619	41.7	38.1	2.42	2.78
Total.....	1 2, 923, 368	3, 012, 757	32.1	27.7	2.28	2.03

¹ This is not the sum of the items but is as appears in the original.

Penalty the American Nation Pays for Speed¹

ONE out of every 200 persons living in the United States will be permanently disabled by industrial accidents this year—a total of more than a half million. Nearly another million other men and women will sustain disabling accidents which will necessitate absence from work four weeks or more. Disease and accidents of everyday life add another million of

as heart disease, the loss of an arm or leg, will not bar a man from a job. It is estimated that 90 per cent of the men and women injured in industry can be returned to useful employment by a careful selection of their occupations.

Inadequate convalescent care is the shame of industrial centers to-day. No provision has been made in our scheme of things for proper convalescent care after hospital treatment is completed. Intimately tied up with the provision for convalescents is vocational training when necessary. For it happens in many instances that a man or woman is permanently incapacitated to earn a living in the accustomed way, and they need new training to qualify them for work which they are physically fitted to do. This thought has caused the medical profession to link hands with the educator and with the personnel managers of industry to the end that all handicapped individuals may once more become productive units of society.

Industrial Accidents to Women in New Jersey, Ohio, and Wisconsin

BASED partly upon workmen's compensation records for the year ending June 30, 1920, and partly upon interviews with women who had been left with permanent injuries as a result of accidents, the United States Women's Bureau has recently completed a study (Bul. No. 60) of industrial accidents to women in New Jersey, Ohio, and Wisconsin.

Three sections of the report are given over to an analysis of work accidents to women from the points of view of legislation, administration, and prevention in the States under consideration. Another section presents some of the interviews with the permanently disabled women, indicating in a general way the need for legislative and administrative changes and for the promotion of preventive work in connection with accidents to women. A total of 3,285 cases were covered (1,096 in New Jersey, 1,545 in Ohio, and 644 in Wisconsin), and 385 out of 536 women reported as permanently injured (according to State records) were interviewed personally in an effort to determine the results of the industrial accidents with special reference to the adjustment of the injured workers to their preaccident status.

From this latter standpoint it is shown that 40, or about one-tenth of the women interviewed, were unable to return to any work, and 40.8 per cent could not return to the work they had formerly done. Of the 338 who definitely returned to industry, 95 (or 28.1 per cent) never equaled their former wages, while 243 (or 71.9 per cent) received the same or higher earnings than before their accident. About 80 per cent of these workers returned to their former employers, while 18.6 per cent were soon laid off or had to quit on account of their disability. Of the women interviewed 47.8 per cent were responsible for the support of others in addition to themselves.

In presenting a general picture of the ways in which women are being injured, it is of interest to show the nature of the injury as related to the cause of the accident. Machinery, which was the cause in 46.4 per cent of the cases, was responsible for 60.6 per cent of the cuts and lacerations, for 26.3 per cent of the

bruises and contusions, for 85.3 per cent of the crushing injuries, for 10.6 per cent of the sprains and strains, for 95.6 per cent of the amputations, and for 37.8 per cent of the punctures. Metal-working machinery, which caused 40.3 per cent of the machine accidents, caused over one-half of the total traumatic amputations and almost one-fourth of the cuts and lacerations. Textile machinery, second in the machine group in responsibility for accidents, was an important factor in injuries in the nature of cuts, lacerations, and punctures; and paper machinery, which was third, gave rise to accidents resulting largely in crushing injuries. Falls of persons were numerically second in seriousness to machine accidents, causing 20.8 per cent of the cases. Besides being the most frequent cause of dislocations and concussions, they were responsible for 61.7 per cent of the sprains and strains, for 61.5 per cent of the fractures, and for 37.6 per cent of the bruises and contusions. The handling of objects, the third large cause of accidents, 15 per cent of the total number being incurred in this way, caused 37.8 per cent of the punctures, 21.9 per cent of the sprains and strains, and 21 per cent of the cuts and lacerations.

The total number of cases included in the report, as classified by the author, covers 15 fatal, 803 permanent disabilities, and 2,467 temporary disabilities. Ninety-two women were compensated for occupational diseases and 11 for hernia. Slightly more than one-half of the permanent injuries involved one finger, dismemberment or loss of use resulting; and 2,243, or 68.3 per cent of the total number of injuries, were to the upper extremities. Of 3,263 cases, 676, or 20.7 per cent, were complicated by infection. Three of these cases resulted in death and 148 in permanent disability.

The report indicates quite a variation in the length of time required for recovery—that is, the healing period. Manufacturing industries, employing 26.8 per cent of the women exposed to hazard, caused 77.7 per cent of the total injuries, 86.3 per cent of the cases resulting in permanent disability, and 74.9 per cent of the cases resulting in temporary disability. Of the total of 3,253 women for whom the healing period was reported, 1,344 (41.3 per cent) required a healing period of 4 weeks or longer, and of that number 269 (20 per cent) required a healing period of 12 weeks or longer. Of these 269 cases, 26.4 per cent were in the services grouped as clerical, professional, etc., in which 61.5 per cent of the women were employed. Textiles, which comprised 6.6 per cent of the total number of women employed, accounted for 8.5 per cent of the 269 cases requiring a healing period of 12 weeks or longer; trade, which comprised 8.8 per cent of the total number, was responsible for 8.6 per cent with such a healing period; food and kindred products, which comprised 3.4 per cent, for 8.2 per cent; laundry work, which comprised 0.9 per cent, for 4.5 per cent; iron and steel, which comprised 1.3 per cent, for 5.2 per cent; and clothing, which comprised 5 per cent of all the workers, for 5.2 per cent with the long healing period.

The table following, arranged from the report, shows the frequency rates per 1,000,000 hours' exposure, and also the severity rates, in terms of days lost per 1,000 hours' exposure, for death and permanent disability cases, by industry groups.

NUMBER EMPLOYED AND ACCIDENT RATES FOR WOMEN INJURED IN INDUSTRY
IN NEW JERSEY, OHIO, AND WISCONSIN, FOR YEAR ENDING JUNE 30, 1920, BY
INDUSTRY GROUPS

Industry group	Number em- ployed	Accidents				Accident frequency rates (per 1,000,000 man-hours)				Estimated number of days lost		Accident severity rates (per 1,000 man- hours) ¹	
		Fa- tal	Per- ma- nent disa- bility	Tem- po- rary disa- bility	Total	Fa- tal	Per- ma- nent disa- bility	Tem- po- rary disa- bility	Total	Fatal	Per- ma- nent disa- bility	Fa- tal	Per- ma- nent disa- bility
Manufacturing:													
Agricultural imple- ments	126	---	1	4	5	---	2.65	10.58	13.23	---	600	---	1.50
Automobiles	3,213	---	21	61	82	---	2.18	6.33	8.51	---	11,280	---	1.17
Buttons (composi- tion)	617	---	6	12	18	---	3.24	6.48	9.72	---	2,250	---	1.22
Chemicals and allied products	4,266	---	37	49	86	---	2.89	3.83	6.72	---	15,252	---	1.19
Clay, glass, and stone products	7,125	---	24	73	97	---	1.12	3.42	4.54	---	8,958	---	.42
Clothing (including dressmaking)	38,146	---	29	160	189	---	.25	1.40	1.65	---	12,840	---	.11
Electrical supplies	8,995	---	51	109	160	---	1.89	4.04	5.93	---	26,640	---	.99
Food and kindred products	26,094	1	60	232	293	0.01	.84	2.96	3.82	6,000	30,756	0.08	.39
Iron and steel	10,263	---	102	178	280	---	3.31	5.78	9.09	---	43,860	---	1.42
Laundry work, clean- ing, and dyeing	6,824	1	25	61	87	.05	1.22	2.98	4.25	6,000	31,128	.29	1.32
Leather products	10,607	---	25	83	108	---	.79	2.61	3.39	---	12,750	---	.40
Metal goods	5,295	5	77	132	214	.31	4.85	8.31	13.47	30,000	35,490	1.89	2.23
Paper boxes	1,793	---	24	69	93	---	4.46	12.83	17.29	---	14,160	---	2.63
Paper and pulp	2,750	1	9	31	41	.12	1.09	3.76	4.97	6,000	6,762	.73	.32
Printing and publish- ing	5,357	---	26	76	102	---	1.62	4.73	6.35	---	10,140	---	.63
Rubber	7,688	---	12	79	91	---	.52	3.42	3.95	---	4,728	---	.26
Straw	282	---	---	4	4	---	---	4.73	4.73	---	---	---	---
Textiles	50,440	---	56	267	323	---	.37	1.76	2.13	---	32,808	---	.22
Wagons and car- riages	157	---	1	1	2	---	2.12	2.12	4.25				

The following data taken from the summary of facts contained in the report include the essential details (some of which have already been noted) brought out by the investigation:

Cause of accident:	Per cent	Permanent disability cases:	Per cent
Machinery.....	46.4	By States—	
Falls of persons.....	21.0	New Jersey.....	29.1
Handling of objects.....	15.0	Ohio.....	8.5
Other causes.....	17.6	Wisconsin.....	13.9
Nature of injury:		Age of women—	
All injuries—		Under 20 years.....	28.8
Cut, laceration, puncture.....	32.9	20 and under 40 years.....	52.3
Bruise, contusion, crush.....	27.5	40 and under 60 years.....	16.2
Sprain, strain.....	11.7	60 years and over.....	2.7
Dislocation, fracture.....	10.4	Cases interviewed (385):	
Amputation.....	7.7	Nativity—	
Burn, scald, crush and burn.....	4.7	Native-born white.....	78.2
Permanent disability cases—		Native-born negro.....	6.2
Cut, laceration, puncture.....	23.5	Foreign born.....	15.6
Bruise, contusion, crush.....	22.3	Education—	
Sprain, strain.....	4.8	Native born—had finished eighth grade or attended high school.....	36.3
Dislocation, fracture.....	10.2	Foreign born—	
Amputation.....	30.4	Could speak English.....	88.3
Burn, scald, crush and burn.....	3.4	Could read English.....	58.3
Location of injury:		Dependents.....	47.8
Upper extremities.....	68.3	Sole support.....	12.6
Lower extremities.....	15.0	Contributed definitely, not sole support.....	35.2
Trunk.....	12.5	Experience in accident occupation—	
Head.....	4.1	Less than 6 months.....	35.6
Healing period of at least 12 weeks in relation to age:		Less than 1 month.....	14.5
All injuries—		Less than 1 week.....	6.0
Under 20 years of age.....	3.9	Industrial rehabilitation—	
20 and under 40 years of age.....	7.7	Disabled for former work.....	40.8
40 and under 60 years of age.....	14.0	Disabled for all available work.....	10.4
60 years of age and over.....	24.3	Of the 338 who definitely returned to industry—	
Permanent disability cases—		Returned to former employer.....	79.6
Under 20 years of age.....	11.6	Soon laid off or had to quit.....	18.6
20 and under 40 years of age.....	20.8	Never since accident had earned so much as before.....	28.1
40 and under 60 years of age.....	33.1		
60 years of age and over.....	50.0		

The report states that—

Hazard is so inherent a part of industry, as at present constituted, that various occupations have each a predictable risk, and the cost to the injured employee of the accidents which occur—the wage loss, medical cost, and expense of restoration of earning capacity—is as logically a direct expense of production as is spoiled material or damaged equipment. Furthermore, the supremely important subject of accident prevention should receive unremitting attention. Thorough study of industrial hazard and scientific analysis of causes of accident mean much in a reduction of casualties incurred by men and women while engaged in gainful pursuits.

Penalties for Violation of Safety Orders

THE law of Wisconsin provides that an employer shall be liable for 15 per cent increased compensation for injuries sustained by his employee under hazards outlawed by the safety orders of the commission. Likewise the compensation payable to an employee or his dependents is subject to a reduction of 15 per cent for willful failure to use safety devices provided by the employer, or for willful failure to obey any reasonable rule adopted by the employer for the safety of the employee, or for injury resulting from intoxication.

The frequency of violations of such orders by both employers and employees and the amount of increased and decreased compensation for the year ended December 31, 1926, is shown in tables appearing in the July 1, 1927, issue of Wisconsin Labor Statistics, issued by the Industrial Commission of Wisconsin.

Out of the total of 22,177 cases closed during the year there were 539 cases in which employers paid the increased benefits. Recovery of increased benefits was most frequent from violations of safety orders governing power presses (118),¹ circular saws (96), solid scaffolds (46), and gears (40). These comprised approximately three-fifths of the total number of violations. The amount of normal compensation paid in these cases was \$315,479.71, and the increased compensation incurred amounted to \$47,851.03.

During the same period there were only 12 employees whose compensation was reduced for violation of safety orders or rules, 6 of these being for failure to use guards on machinery and 6 for intoxication at the time of injury. The amount of normal indemnity in these cases was reduced from \$4,568.34 to \$3,891.79.

The frequency of the violations in the two classes are in the proportion of 45 to 1, which is quite a contrast when it is considered that the employees outnumber the employers many times.

Coal-Mine Accidents in Illinois in 1926

THE 921 coal mines of Illinois, employing 77,732 men, produced a total of 69,813,255 tons of coal in 1926, as shown by the forty-fifth coal report recently issued by the State department of mines and minerals. The shipping mines, numbering 244, or only 26.5 per cent of all the coal mines, but employing 94.6 per cent of the men, produced 97.2 per cent of the coal. These mines worked an average of 155 days each. The average annual earnings of 14,197 pick miners was \$1,022, while 34,926 machine miners averaged \$1,406 during the year.

In 1926 there were 165 (153 underground) fatal accidents. This is 1 fatality to each 423,111 tons of coal mined, or a rate of 2.36 deaths per 1,000,000 tons produced. During the preceding 18-month period the rate was 1.8. As usual, falls of roof and sides claimed the greatest number of casualties, 55.6 per cent of the underground fatalities with haulage second, killing 25.5 per cent.

There were 9,012 nonfatal accidents. In 381 of them the men did not return to work, and the number of days lost by those who did

¹ The order relating to power presses was violated once by 45 employers, twice by 13 employers, three times by 6 employers, four times by 3 employers, five times by 2 employers, and seven times by 1 employer.

return to work was 243,816, or an average of 28 days each. For each million man-hours worked there were 75.68 nonfatal accidents, indicating severity rate of 2.05 per thousand man-hours. The following table gives the frequency and severity rates in greater detail:

TABLE 1.—ACCIDENT FREQUENCY AND SEVERITY RATES IN ILLINOIS COAL MINES IN 1926

Item	Fatal cases	Nonfatal cases	Total
Frequency rate (per 1,000,000 man-hours' exposure).....	1.39	75.68	77.06
Severity rate (days lost per 1,000 man-hours' exposure) ¹	² 8.31	³ 2.05	⁴ 10.36

¹ It is not clear whether the days lost, given in the report (p. 85), are based on the standard allowance as adopted by the International Association of Industrial Accident Boards and Commissions and published in U. S. Bureau of Labor Statistics Bul. No. 276, p. 18.

² The standard allowance of 6,000 days lost for each fatality is used in determining this rate. (See note 1.)

³ Based on 8,631 injured men who returned to work.

⁴ Based on 8,796 accidents, 381 in which the men did not return to work not being included.

The report contains a table comparing the accident record for the 9½-year period ending December 31, 1926, during which compensation has been compulsory, with the preceding 5-year period during which compensation was elective, and also the 30-year period, 1883 to 1912, when there was no compensation act in force. It appears from this table, a summary of which is given below, that a more favorable showing in average annual number of accidents, average number of tons mined per accident, average number of men employed to each accident, and the accident rate per 1,000 employees, was made during the years preceding those in which compensation has been compulsory.

TABLE 2.—COMPARISON OF AVERAGE ANNUAL ACCIDENT RECORD IN ILLINOIS COAL MINES DURING PERIOD IN WHICH COMPENSATION HAS BEEN COMPULSORY WITH AVERAGE ANNUAL RECORD FOR CERTAIN PRECEDING PERIODS

Period	Average per year							Days lost by men returned	
	Number employed	Number injured ¹	Number employed per injury	Number of tons mined per injury	Accident rate per 1,000 employed	Men not returned to work			
						Number	Per cent of injured		
9½ years of compulsory compensation, 1918 to 1926.....	87,059	3,354	26	22,070	38.5	482	14.4	60	
5 years of elective compensation, 1913 to 1917.....	79,186	1,210	65	53,377	18.3	159	13.1	60	
30 years preceding compensation, 1883 to 1912.....	44,461	470	96	55,893	10.6	

¹ Including only those losing 30 or more days each.

Injuries to Minors in Ohio in 1926

A SPECIAL statistical report on injuries to workers under 18 years of age, drawn from the records of the Industrial Commission of Ohio for the year 1926, has just been issued by the division of safety and hygiene of the commission as a part of Special Bulletin No. 1. This report, it is stated, includes the first comprehensive

and exhaustive studies of industrial accidents in Ohio. During 18 months of 1926 and 1927 nearly 2,000 plants and construction operations were visited by safety engineers of the commission, who were responsible for recommending mechanical safeguards and assisting in the safety work of employees and who addressed groups of workers and employers in an effort to do everything possible to reduce accidents.

The report contains very little explanatory text. The tabular material covers claims filed during 1926. During the period covered there were 3,692 cases, 3,139 being males and 553 being females. Sixteen of the males were married and one was divorced; six of the girls were married. There were 6 fatalities and 38 permanent injuries among the boys; one girl was permanently disabled. A total of 687 cases, or 18.6 per cent of all cases, developed blood poisoning.

The report shows that a total of 87,169 days was lost as a result of these injuries to minors. Nearly 24 per cent was due to 1,346 cases of temporary disability, 34.9 per cent to 39 cases of permanent disability, and 41.3 per cent to 6 fatal cases, all these estimates being based upon the standard weighting adopted by the International Association of Industrial Accident Boards and Commissions.¹ In each of 716 of the temporary disability cases more than seven days were lost, and 63.1 per cent of these temporary cases caused no time loss. More than one-fifth of all the time loss was due to blood poisoning. The largest proportion of all accidents reported, about 25 per cent, occurred in metal manufacturing, but 70.2 per cent of these caused no time loss.

Data as to accident frequency and severity are not given in the report and can not be determined from the tables presented, since the number of employees or the hours of exposure is not given.

Handling objects caused 839 (22.7 per cent) of the accidents represented by the claims filed, with machinery a close second, with 831 cases. The largest number of days lost, 21,034 (24.1 per cent) was due to motor vehicles, in which cause group 3 of the fatal cases are found, accounting for 18,000 of these days lost.

The report classifies the accidents and days lost by industry and cause, by part of machine, manner of occurrence, kind of machine, and by degree of disability.

Occupational Disease Claims in Ohio, 1921 to 1926

A REPORT on occupational diseases for which compensation was paid in Ohio, from July 1, 1921, to January 1, 1927, based on claims filed with the industrial commission of that State, has recently been prepared by the division of safety and hygiene of the commission and issued as a part of Special Bulletin No. 1. During the five and one-half years covered by the report, 4,443 claims were filed, and 336 were disallowed. The tabular matter relating to the distribution of these cases by industry, cause, etc., pertains to the total number filed, while the statement as to compensation cost necessarily relates to the number of claims allowed, which according to the report appears to be 2,093 as this number when added to the

¹ See U. S. Bureau of Labor Statistics Bul. No. 276, p. 18.

number of claims disallowed (336), that of claims in which there was no time loss (1,380), and that of claims with time loss of seven days and under (634), makes the total of 4,443 claims filed.

A time loss of 760,069 days is noted, including the time lost by 101 fatal cases and 6 permanent disability cases. Temporary disability of more than seven days occurred in 2,322 cases (52.3 per cent), the total time loss being 134,471, or 17.7 per cent of the total time loss. About 3,000 of these occupational disease claims involved affections of the skin, dermatitis being responsible for 2,890, or 65 per cent, of the total claims, with a time loss amounting to 11 per cent of the total time lost in all occupational disease cases. These cases of dermatitis were due to the action of various industrial elements or compounds upon the skin, including oils, cutting compounds, gases, dust, liquids, fumes, or vapors. Industrial poisoning, including that by brass, zinc, lead, mercury, phosphorus, arsenic, anilin, wood alcohol, etc., accounted for 1,092 claims (24.6 per cent) and was responsible for a time loss of 345,519 days, or 45.5 per cent of the total time loss. Metal-goods manufacturing caused 25.7 per cent of the cases of occupational disease and 23.9 per cent of the total time loss.

The industrial commission awarded a total of \$369,942 in settlement of compensation claims. Of this amount, \$178,743 was paid in death claims, \$2,890 in permanent disability claims, and \$188,309 (51 per cent) in claims where the temporary disability lasted beyond the statutory period of seven days. Nearly 76 per cent of the total compensation amount was paid for industrial poisoning, with lead poisoning taking the largest amount, \$241,760, or 86.3 per cent of the compensation for industrial poisoning cases. Of the total compensation awarded, those working in metal-goods manufacturing received a larger sum than any other industry, the amount being \$65,117, or 17.6 per cent; and here again lead poisoning was the cause resulting in the largest compensation, requiring \$44,990, or 12.1 per cent of the total allowed and 69.1 per cent of the amount awarded to this particular industry group.

Mining Accidents in Tennessee in 1926¹

IN THE coal mines of Tennessee in 1926 there were 49 fatal accidents, 27 of which were caused by an explosion in one mine, and 232 nonfatal injuries. In mines other than coal there were 9 fatal and 146 nonfatal accidents. This gives a total of 436 mining accidents, 58 of which resulted fatally. The following statement, summarizing information for the years 1925 and 1926, computed and gleaned from the report, covers coal mines only, similar data not being complete for other metal mines:

	1925	1926
Number of employees.....	8, 951	8, 374
Number of days mines operated.....	202	234
Total man-hour exposure.....	18, 081, 020	19, 595, 160
Number of accidents.....		281
Accident frequency rate (per million man-hours).....		14.3
Number of fatalities.....	27	49
Fatality rate (per million man-hours).....	1.5	2.5

¹ Tennessee. Department of Labor. Division of Mines. Thirty-second annual report of the mineral resources of Tennessee. Nashville, 1927.

The increase in the fatality rate in 1926, it is explained, was due to an explosion in one mine which resulted in the death of 27 men, 13 of whom were miners and 6 drivers. The total production of coal was 6,089,162 short tons, giving a fatality rate of 8.05 per million tons mined. The report indicates that the average daily wage paid to employees in coal mines was \$3.33.

The increase in the fatality rate in 1926, it is explained, was due to an explosion in one mine which resulted in the death of 27 men, 13 of whom were miners and 6 drivers. The total production of coal was 6,089,162 short tons, giving a fatality rate of 8.05 per million tons mined. The report indicates that the average daily wage paid to employees in coal mines was \$3.33.

Mining Accidents in Tennessee in 1926

The coal mines of Tennessee in 1926 were 40 fatal accidents, 27 of which were caused by an explosion in one mine, and 232 nonfatal injuries. In mines other than coal there were 2 fatal and 146 nonfatal accidents. This gives a total of 42 fatal accidents, 25 of which resulted fatally. The following statement, based on information for the years 1925 and 1926 compared and drawn from the report, shows coal mines only; similar data not available for other metal mines.

Source: Department of Labor, Bureau of Mines, Tennessee, Nashville, 1927.

WORKMEN'S COMPENSATION AND SOCIAL INSURANCE

Recent Compensation Reports

Hawaii

THE industrial accident board of the city and county of Honolulu has recently presented its reports for the years ending June 30, 1925, and June 30, 1926.

During the year ending June 30, 1925, 4,311 accidents were reported to the board, of which 25 were fatal. There were 33 nationalities represented, 1,156 of the injured being Japanese, 672 Filipinos, 647 Portuguese, 448 American, and 440 Hawaiian, the others following in smaller groups. Of the persons involved, 4,256 were males and 55 females; 2,323 were married and 1,988 were single.

Accidents causing disability of less than one day numbered 1,103, and those lasting less than one week, 1,689. These were noncompensable except as far as medical, etc., aid was involved. Of the remaining cases, 1,435 caused only temporary total disability, for which compensation amounting to \$50,436 was paid. Medical and hospital expenses for this group and for those not receiving compensation because disabled less than one week, amounted to \$67,716, or a total for the 4,227 accidents of \$118,152. Permanent partial disability, caused by amputation or loss of use of different members of the body, succeeded the period of total disability in 59 cases. Payments for the total disability periods in these cases aggregated \$5,706, and for the permanent partial disabilities, \$35,190. Medical and hospital service brought the total benefits for these cases up to \$47,381.

The 25 fatal cases called for compensation amounting to \$42,240 and funeral expenses of \$2,345. Medical and hospital expenses in the sum of \$922 made the total benefits for this class \$45,507.

The total compensation benefits for the year were \$211,039.

The board emphasized the need of Territorial legislation in relation to compulsory safety devices.

The report for the year ended June 30, 1926, shows 4,511 accidents reported during the year, 3,041 of them being noncompensable except so far as medical, etc., aid was involved, and of the remaining 1,470 cases, 1,362 caused only temporary total disability, 85 were succeeded by permanent partial disability, and 23 were fatal.

There were 31 nationalities represented, 1,327 of the injured being Japanese, 844 Filipinos, 643 Portuguese, 406 American, and 402 Hawaiian, the others following in smaller groups. Of the persons injured 4,448 were males and 63 females; 2,382 were married and 2,129 were single.

Compensation in the amount of \$47,385 was paid on account of the 1,362 cases causing temporary total disability, and medical, etc., aid

for this group and for those not receiving compensation because disabled less than one week amounted to \$59,266, or a total for the 4,403 accidents of \$106,651. Payments for the total-disability period in the 85 cases that were succeeded by permanent partial disability aggregated \$10,422 and for permanent partial disabilities \$43,023. Medical, etc., aid brought up the total benefits for these cases to \$63,217.

The 23 fatal cases called for \$11,864 in compensation, \$978 funeral expenses, and \$1,022 medical and hospital expense, a total of \$13,864.

The total compensation benefits for the year were \$183,732.

The majority of the sugar and pineapple plantations and canneries maintain their own medical staff and hospitals for the care of their employees and do not report to the board the cost of the hospital and medical services for each individual case of minor accidents. The foregoing figures therefore do not include costs of this kind.

Oklahoma

THE Industrial Commission of Oklahoma in its eleventh annual report covers the year September 1, 1925, to August 31, 1926. Its summary statement shows 49,837 accidents reported during that period as compared with 48,699 reported in 1925, an increase of 1,138. This is the smallest annual increase in accidents reported by the commission since 1921 and is attributed to three causes—namely, the safety work that is being conducted in many of the industries covered by the act, the campaign of education to secure prompt reports of accidents, and cooperation in providing prompt medical attention.

There were 50,962 cases finally disposed of and actually closed out during the year. This includes injuries which may have happened prior to September 1, 1925, but in which the extent of disability could not be determined until this year.

The three causes producing the greatest number of accidents were stepping on or striking against objects (7,568), falling objects from elevation (4,530), and lifting heavy objects (4,238). Not all the injuries reported have been permanently classified as to nature and extent. However, 270 cases of a permanent nature, either total or partial, have been determined, of which 33 were eye injuries in which the vision was totally destroyed. The aggregate time lost in 45,929 cases in which employees were found entitled to compensation was 854,584 man-days. The compensation paid aggregated \$1,107,997 and medical aid \$279,630, making total benefits \$1,387,627.

The location of the injuries caused by accidents is given in much detail, as are also the number of accidents in the various industries, percentage of disabilities, time lost, and compensation paid, classified by causes. The largest number of accidents occurred in the oil industry (20,279), oil-well drilling being responsible for 13,043 of them. Accidents in mining and quarrying came next, with 8,977, and building, erecting, and demolishing followed, with 3,429 accidents. The number of accidents does not indicate their seriousness, oil-well drilling being chargeable with the largest amount of lost time (218,553 days) and of compensation and medical aid cost (\$394,173), far exceeding the totals for any other occupation.

German Unemployment Insurance Act¹

ON JULY 16, 1927, the Reichstag passed an act by which the present system of unemployment relief out of public funds is replaced by a system of compulsory insurance of workmen and employees against unemployment. At the same time the public employment bureaus operated at present by the communities under State supervision are taken over by the Reich. The act, which is headed "Law concerning mediation of employment and unemployment insurance," came into force October 1, 1927.

The provisions of the act are, summarized, as follows:

Administrative Authorities

THERE shall be established a Federal Bureau for Employment and Unemployment Insurance, which shall absorb the Federal employment bureau, the present central official employment office. This new bureau is a self-governing body, except in so far as it is placed under the supervision of the Federal Minister of Labor, and the Federal Government has reserved the right to approve its budget, service regulations, the formation of new wage classes, and certain other powers. The organs of self-government are boards of executives composed for each section of representatives in equal numbers of workers, including at least one employee, employers, and public bodies (State and communal). The representatives of public bodies, however, have no voice in the settlement of questions relating to unemployment insurance. This field is reserved entirely to workers and employers to insure strict adherence to the principle of self-government.

The duties of the authorities include to a large extent measures to prevent unemployment. Aside from finding work for the unemployed, traveling expenses may be paid to workmen and employees being transferred to other places out of funds of the Federal bureau, also working equipment and eventually a limited contribution to the wages or salaries. The State labor offices may promote emergency work for the unemployed out of the bureau's funds, by way of loans or subsidies which, however, shall not be given to private enterprises carrying on an occupation for profit.

Persons Subject to Insurance

THE liability to unemployment insurance applies to all classes of workers liable to compulsory health insurance (the wage limit being from October 1, 1927, 3,600 reichsmarks,² at present 2,700 reichsmarks a year), to employees liable to compulsory old-age and sickness insurance (limited to persons earning a salary of up to 6,000 reichsmarks a year), and to the crews of vessels. Certain exemptions are made with regard to persons employed in forestry and inland or coast fishery who themselves live on the proceeds of their work and are in the employ of another person ordinarily less than six months a year; also to workers subject to long-term labor contracts and apprentices bound by an apprenticeship of no less than two years.

¹Summary furnished by United States Consul General C. B. Hurst, Berlin, Aug. 6, 1927.

²Reichsmark = 23.8 cents.

Premiums and Benefits

THE unemployment insurance premiums are payable jointly with the health insurance fees, or, if a person is not liable to health insurance, they must be paid to the local health insurance office under whose jurisdiction the insured would come in case of liability. The cost of the premiums, borne in equal proportion by workers and employers, will be fixed by the executive board of the Federal Bureau for Employment and Unemployment Insurance. The rate shall not exceed 3 per cent of the wages or salaries forming the basis of calculation—namely: (1) For persons liable to compulsory health insurance, the basic wages or salaries set for the calculation of health insurance premiums; (2) for employees not liable to health, but liable to old-age and sickness insurance (i. e., persons receiving a salary exceeding 3,600 reichsmarks, but not 6,000 reichsmarks a year), and persons having insured themselves voluntarily, the amount of salary of 3,600 reichsmarks; (3) for crews of vessels not liable to health insurance, the average wages or salaries paid to members of the respective class of workers to which the insured belongs.

The health insurance offices turn over the premiums collected to the State labor offices. The premiums include a share for the States and a share for the Reich. The latter shall be applied to cover deficits of any overburdened State labor district and to create an emergency fund which is to be kept up in an amount equal to the sum total of benefits required for 600,000 unemployed during a three months' period of unemployment.

The benefit is fixed according to the wages or salaries received by the unemployed and embraces the benefit proper and a family allowance. Wages and salaries are divided into 11 classes, and for each wage class a standard wage or salary is set, of which a certain percentage constitutes the benefit. The family allowance amounts to 5 per cent of the standard wage or salary. The benefit is paid from the eighth day after the authorities are notified of a person's unemployment; under certain conditions it may be paid earlier. The claim to benefit arises after 26 weeks' payment of premiums, and payment of the benefit likewise is limited to 26 weeks. The benefit is granted if the applicant is fit and willing to work, if he has lost his job without his own fault, or at the least resigned it for a just reason. The benefit is not granted during strikes and lockouts, except under certain conditions, in case of indirect participation, to avoid special hardship. After the expiration of the 26 weeks' benefit the beneficiary falls under the category of the "Ausgesteuerte"—i. e., persons who after having had their full allowance from the insurance funds are turned over to the care of the so-called "Krisenfürsorge," or emergency relief, in times of economic crises, the cost of which is borne by the Reich and communities at the ratio of 4 to 1. This relief is granted also to certain unemployed who have not yet acquired a full claim to benefit, if they are deserving. The cost of this relief is the only expenditure which the Reich and the communities will in future incur through unemployment.

The obligation to accept any work assigned to an unemployed person is maintained only with regard to persons below 21 years of age and beneficiaries of the "crisis" relief, but other beneficiaries

must after nine weeks' payment of benefit accept any work allotted to them, however uncongenial or unfamiliar.

Short-time Workers

SHORT-TIME workers receiving insufficient or irregular wages may be granted benefit out of the Federal bureau's funds, but the amount of benefit plus the wages received shall not exceed five-sixths of the full wages to which the beneficiary would be entitled under normal conditions.

The principal advantage of the insurance system over the system of unemployment relief out of public funds lies in the fact that the workmen and employees, through their contributions, acquire a legal claim to support during a period of unemployment, and that the benefit is fixed in proportion to the wages and salaries normally paid the unemployed.

In the following table it is shown how the system of wage classes and benefits works out:

WAGE CLASSES AND BENEFITS UNDER GERMAN UNEMPLOYMENT INSURANCE LAW

[Reichsmark = 23.8 cents]

Weekly wage or salary class	Standard wage or salary	Benefit (in per cent of standard wage)	
		Basic benefit	Total benefit, including family allowance ¹
	<i>Reichsmarks</i>		
10 reichsmarks and under.....	8	75.0	80.0
Over 10 and up to 14 reichsmarks.....	12	65.0	80.0
Over 14 to 18 reichsmarks.....	16	55.0	75.0
Over 18 to 24 reichsmarks.....	21	47.0	72.0
Over 24 to 30 reichsmarks.....	27	40.0	65.0
Over 30 to 36 reichsmarks.....	33	40.0	65.0
Over 36 to 42 reichsmarks.....	39	37.5	62.5
Over 42 to 48 reichsmarks.....	45	35.0	60.0
Over 48 to 54 reichsmarks.....	51	35.0	60.0
Over 54 to 60 reichsmarks.....	57	35.0	60.0
Over 60 reichsmarks.....	63	35.0	60.0

¹ Family allowance = 5 per cent of standard wages.

COOPERATION

Cooperative Banking Authorized in Iowa

AT ITS 1927 session the Iowa Legislature passed a law (ch. 205, Laws of 1927) authorizing the formation of cooperative banks empowered to conduct a general banking business.

Ten persons are required as incorporators. Shares may not be less than \$10 each, and share capital equal to that required in the case of State banks must be subscribed before a certificate of incorporation will be issued.

Cooperative banks are given all the powers granted to State banks.

Dividends on share capital may not exceed 8 per cent of the par value of the stock. After this has been paid and a surplus equal to half the capital stock has been accumulated any surplus earnings may be distributed among the depositors and borrowers—among the depositors in proportion to the amount of interest received by them on their deposits and among the borrowers in proportion to the amount of interest paid by them on their loans.

Voting is on the basis of one vote per stockholder, regardless of amount of stock owned.

The use of the term "cooperative bank" is prohibited, except by enterprises incorporated under this act, on penalty of a fine of \$500.

The July 23, 1927, issue of *Agricultural Cooperation* (Washington, D. C.) reports that already one bank has been incorporated under this act. It began business June 28 in the little town of What Cheer, "taking over the business of a small savings bank which had the confidence of the community but needed more capital." The new bank is capitalized at \$25,000, and has 77 members, many of whom are said to be members of the Farmers' Union.

Development of Building and Loan Associations, 1925-26

AT THE thirty-fifth annual meeting of the United States League of Local Building and Loan Associations, held in Asheville, N. C., July 19 to 22, 1927, data were submitted by the secretary of the league showing the status of the building and loan associations at the end of the fiscal year 1925-26.¹ His report shows that that year brought forth the "largest increase in assets which has ever been shown in any single year of their history." As compared with the previous year the membership increased nearly 8 per cent and assets nearly 15 per cent. During 1925-26 these associations made mortgage loans aggregating \$1,945,000,000, "which provided the means for the purchase or building of over 550,000

¹United States League of Local Building and Loan Associations. Secretary's annual report relating to the building and loan associations in the United States, submitted to the thirty-fifth annual meeting at Asheville, N. C., July 19-22, 1927. Cincinnati [1927?].

homes." The mortgage loans of these organizations outstanding at the end of 1925-26 amounted to \$5,852,689,591.

The table below, taken from the report, shows the number, membership, and assets of these associations, by States:

DEVELOPMENT OF BUILDING AND LOAN ASSOCIATIONS IN THE UNITED STATES, 1926-27

State	Number of associations	Number of members	Total assets	State	Number of associations	Number of members	Total assets
Alabama ¹	20	20,000	\$15,000,000	Nevada	1	900	\$400,370
Arizona	6	3,925	1,681,520	New Hampshire	28	15,115	9,223,974
Arkansas	71	53,064	32,029,637	New Mexico ¹	18	6,500	3,250,000
California	176	223,440	190,106,988	New Jersey	1,473	1,084,381	700,067,751
Colorado	64	85,144	35,186,058	New York	309	504,008	297,707,160
Connecticut	38	35,896	18,290,897	North Carolina	240	96,500	85,715,009
Delaware	41	16,250	8,844,308	North Dakota	18	15,300	7,788,410
Dist. of Columbia	22	59,299	50,729,274	Ohio	841	2,147,275	928,381,733
Florida	73	27,000	39,357,725	Oklahoma	90	167,410	103,343,185
Georgia ¹	21	5,000	1,500,000	Oregon	42	38,200	18,280,225
Idaho	12	4,250	2,335,265	Pennsylvania	4,460	1,800,000	1,130,000,000
Illinois	881	840,000	355,509,301	Rhode Island	7	31,819	19,538,508
Indiana	399	382,123	247,903,736	South Carolina	152	26,800	22,782,000
Iowa	74	71,800	40,771,567	South Dakota	26	7,015	5,000,427
Kansas	153	189,393	107,315,298	Tennessee	24	11,275	6,716,217
Kentucky	147	133,400	74,704,133	Texas	138	124,951	70,804,572
Louisiana	100	165,332	154,186,635	Utah	24	96,284	30,864,124
Maine	38	26,171	17,458,473	Vermont	9	3,805	2,236,747
Maryland ¹	1,210	330,000	200,000,000	Virginia	79	51,500	44,557,196
Massachusetts	220	466,492	425,511,319	Washington	72	249,338	89,001,163
Michigan	83	192,070	112,887,929	West Virginia	60	54,500	28,704,386
Minnesota	83	69,618	28,643,208	Wisconsin	171	229,165	182,382,373
Mississippi	35	18,600	13,015,838	Wyoming ¹	20	14,000	8,000,000
Missouri	243	215,000	139,461,899				
Montana	31	37,500	13,738,790	Total	12,626	10,665,705	6,334,103,807
Nebraska	83	218,807	153,128,475				

¹ Figures estimated.

Work of Remedial Loan Associations

THE National Federation of Remedial Loan Associations has recently issued a report covering the operations of 28 associations affiliated with the federation for the fiscal year 1926-27. These societies are semiphilanthropic institutions financed by private capital "to supply funds for

Cooperative Movement in Spain

THE cooperative movement of Spain is described in an article by Prof. Charles Gide in an article in the April-June, 1927, issue of the *Revue des Études Coopératives*,¹ from which the following data are taken.

Consumers' Cooperation

IT IS pointed out that Spain holds a "very little place" in the consumers' cooperative movement. Exact statistics are not available, but it is estimated that there are some 250 consumers' societies, with about 80,000 members, grouped into three federations. This in a country with a population of some 25,000,000 means that there is about 1 cooperator to every 100 inhabitants.

In point of average cooperative purchases per member these societies make a better showing. The average yearly sales per member average 1,100 pesetas (\$163.85), and in some societies average as high as 2,340 pesetas (\$348.56), a figure, according to Professor Gide, which no French society can equal. These high yearly sales, it is explained, are due to the great variety of goods carried by Spanish cooperative societies.

Spain's most original contribution to the development of cooperation, however, is found in the colonization societies and the organizations formed by the fishermen.

Colonization Societies

A LAW was passed in 1907 having for its purpose the internal colonization of Spain and the repopulation of the country. Under the law, poor peasant families were to be allotted plots of ground and provided with the means of cultivation. The benefits of the law, however, were to be limited to families without means which lived in the vicinity of the lands to be colonized (because these would already be familiar with the requirements and conditions of the land in the region) and which possessed some knowledge of or aptitude for farming. The law provided for a royal commission (or *junte*) which was to have charge of the administration of the law.

The first problem arising was that of securing land for colonization purposes. No attempt was made to secure privately owned land, the experiment being confined solely to that owned by the State or the communes. The communal land was of two classes: That in which title was in the commune as such, and that which was really "common" land—i. e., owned collectively by the people of the commune and which could be disposed of only by a referendum securing a three-fourths vote of all the inhabitants. The State land could be secured easily enough, but the communes were generally unwilling to dispose of land that was of value. The result was that communal lands taken over were usually the poorest land in the district.

In allotting the land preference was given to families with the largest number of sons, for sons would be of greater help in farming than would daughters. Only those peasants were chosen who seemed capable of becoming good colonists and who could give proof

¹ *Revue des Études Coopératives*, Paris, avril-juin, 1927, pp. 209-230: "Certains aspects originaux du mouvement coopératif en Espagne," par Charles Gide.

of general good conduct. Each family was given, free, a plot of ground large enough to enable the family "to live by its own labor" but not large enough to require any outside hired help. As one of the objects of the law was the creation of independent farmers from poor farm laborers, care was taken to prevent the attraction to the colony of wageworkers.

For the first five years the colonist held his land on probation. During this period he must demonstrate his fitness as a colonist and his ability as a farmer; if he failed the land was taken back. At the end of the five-year period the colonist became proprietor of his plot of ground with the dwelling thereon, but with the restriction that (1) he could not dispose of it for 10 years; (2) if after 10 years he wished to sell, the colonization society must be given the first chance to purchase; (3) he was prohibited from using the farm as security for a loan; and (4) the plot of land must never be divided.

The colonists in each locality were required to form a cooperative association whose functions included the supply of household and farm necessities, the marketing of the products of the colony, and the provision of a medium of credit, savings, mutual aid, and cultural development.

Capital was necessary to finance the farming operations, the supply of machinery, the necessities of life, etc., while the land was being brought into cultivation, for the colonists were, as already stated, chosen from the poorest farm laborers. This capital was obtained from the communes, from agricultural credit and other banks, etc., on the collective guaranty of the colony, acting through the cooperative society. These advances were payable over long periods, sometimes up to 50 years.

The State's contribution to the community took the form of the construction of roads, sewers, and various community services.

There are now some 20 such colonies, covering altogether about 10,500 hectares (nearly 26,000 acres) and including somewhat over 1,200 colonists. Thus the average holding is not quite 9 hectares (about 22 acres), although this varies according to the kind and quality of land obtained. Most of the colonies are in the southwest of Spain, and the greater portion of the land is situated on the mountain sides, since the municipalities were unwilling to give up land unless it was "well-nigh useless."

One colony is described which was ceded a barren stretch of land that upon analysis was shown to be 91 per cent pure sand. But, "by a dispensation of Providence," it was found that the soil was exactly suited to the cultivation of vineyards, the sand also being fatal to the phylloxera with which European vineyards are afflicted; also, the land was situated at the mouth of the Guadalquivir River and was therefore irrigated by its waters. Thus what seemed an utterly worthless piece of ground turned out to be a wonderful producing region, and each family from its plot of ground (1 hectare—about $2\frac{1}{2}$ acres—for those with a market garden, 2 hectares for those with vineyards) averages an income of from 3,000 to 5,000 pesetas (\$447 to \$745) per year.

A central bank has been formed which is endeavoring to introduce among the colonists a genuinely cooperative system of farming—that of the collective farming of a number of plots of ground instead of the individual cultivation of each plot.

The scope of the colonization work is limited by the amount of lands available for the purpose. Immense amounts of land are owned by rich landowners, and much of this is idle ground which might be made of use for the people as a whole. With this in mind, the junta drew up a bill designed to remedy the land situation. It provided for a survey of all the lands in the Kingdom "to determine what were the uncultivated lands, neglected by the proprietors, but which could be improved and in that way were proper for colonization." Such of these lands as was necessary would be expropriated, with indemnity to the owners.

The bill was introduced in 1911 and again in 1914, when the war caused it to be laid aside. It was presented for a third time in 1921, but was laid aside because of much opposition. Professor Gide remarks that the limitation upon land ownership imposed by the bill would be "very modest" as compared with the measures of expropriation taken by some of the countries of eastern Europe, but the bill "appeared very revolutionary in Spain," and its chances of passage appear remote, especially since the junta has been dissolved and the colonization work placed under a ministerial bureau, indicating, perhaps, that the administration found the zeal of the junta "a trifle importunate."

If, however, the bill becomes law and "all the great Spanish domains are cultivated by small proprietors, required to unite under a system of cooperative associations, it would be a considerable achievement in the history of the cooperative movement. We might even see the ideal solution of the great agrarian problem."

Fishermen's Cooperatives

FISHERMEN'S cooperative associations, or *positos*² marítimos, as they are known in Spain, have attained a remarkable development. They are found along all the seacoast of Spain and now number some 140 or 150, with about 35,000 members. Eighty of these associations own their own boats.

Though the primary object of these associations is the sale of fish directly to the consumer (Professor Gide points out that there is hardly a commodity in which the margin between the price received by the producer and that paid by the consumer is greater), the organizations include not only the fishermen but all the workers of sea and port. Thus the fishers, lightermen, boat builders, calkers, painters, etc., all belong to the same association.

These associations, it is pointed out, are, as regards altruistic character, in the front rank of the cooperative movement. No dividends are returned to either members or patrons of the society. The earnings, above the wages of the members, are used, first, to pay any debts of the association (such as money borrowed to buy boats, etc.), and then, if any money is left, it is used for social purposes. The societies are directing their attention especially to "the two scourges of maritime population in all countries, but particularly in Spain—ignorance and alcoholism." In Spain 85 per cent of the fisher population can neither read nor write. The first step of these organizations of illiterate fishers is to provide schools for their chil-

²"Positos" means literally a place where something is deposited, as a bank, grain elevator, etc., but it is explained that the word has a wide general use in Spain in sort of a symbolic way.

dren. Already more than 100 schools have been built, at which 8,650 children are in attendance. At these schools the children not only are receiving a general education but are also being instructed in the principles and practice of cooperation. They form their own little cooperative societies through which they purchase their books, pencils, and other school supplies, plan and carry out little excursions, etc.

The fishers' societies make their own nets, cordage, and paint, paint and calk the boats, etc. Any capital needed can be secured, through the collective liability of the group, from the Maritime Credit Bank, administered by a council composed of the Minister of Marine, certain other State officials, and representatives of the men.

Of the societies, 50 devote themselves solely to the marketing of the catch, but 66 have also established insurance against sickness, invalidity, and old age; 26 make loans to their members; 6 have undertaken to build homes for the workers; and 36 have established cooperative stores.

Industrial Training in Alaska

THROUGH the Alaska Division, the United States Bureau of Education is developing and educating the native population of Alaska, many of whom are in a state of racial childhood and require assistance in adjusting themselves to the new conditions which civilization has brought about, according to a pamphlet recently published by that bureau. The work involves the training of entire communities and includes the maintenance of schools, hospitals, and orphanages, the relief of destitution, the fostering of the organization of cooperative business enterprises, the settlement of colonies, and the supervision of the reindeer industry. One of the most effective agencies for the advancement in education of a native village, the bureau reports, is the establishment of a cooperative store, owned and managed by the natives, under the supervision of a teacher of a United States public school. In this store food and clothing are sold at equitable prices and the profits which otherwise would go to a white trader, are divided among the

117 S. Western Journal, News Letter No. 31; Activities affecting women in industry. Alaska Review, July 1932, p. 38.

118 Bureau of Education, Department of the Interior, Bureau of Education, Bulletin, 1931, No. 6. 119 United States Department of the Interior, Bureau of Education for the natives of Alaska, by William Hamilton.

WORKERS' EDUCATION AND TRAINING

Summer Schools for Woman Workers¹

FOUR special summer schools for woman wage earners were in session this year. The Southern Summer School for Woman Workers in Industry at Sweet Briar College, Va., which opened for the first time July 22, 1927, had 24 students, while the new school at Barnard College, New York City, began its courses on June 27 with accommodations for 40 students. This latter experiment is under the auspices of a joint committee of college representatives and woman workers and is administered as a separate unit within the Columbia University Summer Session. The Wisconsin Summer School for Women in Industry was inaugurated several years ago² and started its 1927 season with 50 students.

The well-known Bryn Mawr College School dates back to 1921.³ Of the 521 woman workers who have availed themselves of the courses at this school during its six seasons, 56 have returned for a second summer. This year there were 102 students. They came from various parts of the United States and one of the women was from England.

Brookwood Labor College, it will be recalled, holds summer institutes for men and women.

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¹U. S. Women's Bureau. News Letter No. 51: Activities affecting women in industry.

²Labor Review, July, 1926, p. 98.

³Idem, pp. 97, 98.

⁴United States. Department of the Interior. Bureau of Education. Bulletin, 1927, No. 6: Work of the Bureau of Education for the natives of Alaska, by William Hamilton.

natives themselves. The natives also acquire self-confidence and experience in business affairs through managing the store.

Until recently no systematic form of industrial education for the natives of Alaska was provided within the Territory. Formerly young Alaskans were sent to the schools maintained by the United States Office of Indian Affairs in the States. This policy, however, was found to be unwise and uneconomic for various reasons. The change of climate frequently had a deleterious effect on the health of the children, and many of those who returned to Alaska found it difficult to adapt themselves to their home environment. Some of those who remained in the States are said to have found themselves forced into unfortunate social conditions. Therefore the policy was adopted of establishing industrial schools within Alaska itself. Three schools, located at points accessible from the different sections of the Territory, already have been established, and the Bureau of Education states that it is the intention to extend the facilities for industrial training as rapidly as funds permit.

The curricula of these vocational schools include house building, carpentry, boat building, furniture making, sled construction, operation and repair of gas engines, marine engineering, navigation, tanning, ivory carving, and basket weaving. The native races of Alaska are said to possess extraordinary dexterity, evidence of which is found in the ivory carving of the Eskimos, the basket weaving of the Aleuts, and the totem carving of the inhabitants of southeastern Alaska, and with very little training they excel in all mechanical occupations.

As a result of the work of the Bureau of Education and of other civilizing agencies, the primitive conditions which existed in Alaska when the bureau began its work there 40 years ago have gradually disappeared except in some of the remotest settlements which have not been reached. In many of the villages the old huts have been replaced by neat, well-furnished houses, the homes of self-supporting, self-respecting natives, thousands of whom are employed by the great canneries of southern Alaska. Fleets of power boats owned and operated by natives carry fish from the fishing grounds to the canneries. Many natives are employed in the mines, while others are pilots, trappers, storekeepers, loggers, or ivory carvers, and still others are employed as cooks, janitors, and orderlies in the hospitals. Some have entered the legal and clerical professions. For many years the bureau has been appointing as teachers in its Alaska school service the brightest of the graduates of its schools. Native girls showing special qualifications for medical service are received into the bureau's hospitals for training as nurses. Throughout northwestern Alaska and along the Alaska Railroad native owners of reindeer, whose herds furnish an inexhaustible meat supply, are important factors in the industrial and economic situation of the Territory.

WELFARE WORK

Encouragement of Thrift by Employers

AS PART of the Bureau of Labor Statistics' recent survey of personnel activities carried on by industrial establishments in the United States, study was made of the various plans in use for the encouragement of thrift among employees. These plans include savings and loan funds, building funds, profit-sharing plans, sale of company stock to employees, vacation and Christmas savings funds, cooperative buying and discounts on company goods, legal aid, and advice as to investments and expenditures.

The survey covered a total of 430 companies. One hundred and ninety-six companies reported that an effort was made to get their employees to put something in the bank each pay day. In the majority of instances this assistance consisted of deducting from the pay envelope an amount specified by the employee and depositing it to his credit in his bank or sometimes arranging for a representative of a bank to be present on pay day to receive the employees' deposits. While this may not be regarded as very definite assistance on the part of the employer, it does make it easy for the individual employee to maintain a bank account, and it has the added merit, where the employees themselves make the deposits, of the example afforded by a large number following a plan of systematic saving. In other establishments there is a savings fund into which the members pay a stated amount each week and often this fund is used as a loan fund for subscribers. Very often these funds are in charge of the employees and they are allowed the necessary time for the management of the fund and for collecting deposits on pay day.

Types of Savings and Loan Funds

THERE are several types of savings funds—credit unions in which membership is conditioned on purchasing a stipulated number of shares of stock; investment funds in which the depositor's savings will be invested for him if he wishes; funds in which members are required to pay a certain percentage of their salary, a stated amount being paid in to their credit by the company; the regular savings and loan fund, in which a certain rate of interest is paid on deposits and from which members in good standing may secure small loans; and vacation and Christmas savings funds. The last two are planned for saving for a definite purpose, but they have been found to have a good effect in teaching the value of systematic saving.

Frequently a very large proportion of the employees of an establishment are members of the savings fund. A credit union made up of nearly the entire personnel of a company manufacturing incandescent lamps is probably typical of this type of organization. A small entrance fee is charged, and in order to become a member it is necessary to subscribe for at least one share of stock, after which the usual

banking procedure in making deposits or withdrawing money is followed, although the directors may at any time require depositors to give 30 days' notice of intention to withdraw the whole or any part of a deposit. Members in good standing in the credit union may secure loans upon written application and stating the purpose for which the loan is desired, the maximum amount loaned to any member at any one time being \$50 unsecured and \$200 secured. This organization is run entirely by the employees, but the employer pays for the bookkeeping.

A large mail-order house sells thrift certificates to those employees who wish to purchase them. The certificates are issued in denominations of \$50 and multiples thereof and may be paid for in regular installments or by deposit at any time. Payments may be made personally to the cashier, or the paymaster may be authorized to deduct them from the pay. These certificates, which are nonnegotiable, bear interest at the rate of 5 per cent. Any employee who is the head of a family and who has saved at least \$500 may secure a loan from this company for the purpose of building or buying a home, and emergency loans are made to employees on approval of the office manager.

The savings plan of a gas and electric company was established for the encouragement of thrift among the employees and to interest them in the company's affairs by helping them to become part owners through acquisition of the company's stock. The plan permits deposits in sums of not less than 25 cents. Five per cent interest, compounded quarterly, has been paid since the organization of the fund. Depositors may, from time to time, make arrangements to have their savings invested in the bonds or capital stock of the company, but this is entirely optional with them. The fund is administered without expense to the employees. A board of 14 trustees, 10 of whom are employee depositors and the remainder company officials, directs the operation of the fund. More than half of the 4,200 employees at the time of the survey belonged to the fund and had on deposit more than a quarter of a million dollars. Members may borrow up to \$200 from the fund, the loan to be repaid in monthly installments within a year.

A corporation with many plants had in 1926 about 36,000, or 54 per cent of all eligible employees, participating in its savings and investment plan. Under this plan all employees are eligible to participate after three months' service with the company, and employees who desire to do so may pay into the savings fund each year an amount not to exceed 10 per cent of their wages or salary, with a maximum of \$300. The corporation pays into this fund on or before the last day of December each year an amount equal to one-half the net payments made by the employees which is credited to the account of each employee over a period of five years. Employees may withdraw their savings from the fund, plus interest, at any time, but if they withdraw before the end of five years they forfeit the unmaturing portion of the money paid in by the corporation. Interest at the rate of 6 per cent per annum is paid. The funds in the different plants are divided into yearly classes designated by the year in which the class was formed. At the end of the period for the 1920 class—the first five-year class—8,300 employees received \$11,200,000 in cash and common stock. This was equivalent to a return of more

than nine dollars to one on each employee's savings. Through the resources of this fund employees are assisted in buying or building homes, and in the first six years it was in operation more than 7,000 employees took advantage of this assistance.

A combined savings and profit-sharing plan is in force among all the branches of a large mail-order house. In order to participate an employee must deposit 5 per cent of his salary. The company contributes a part of the net profits of the business after certain deductions have been made, and this contribution is credited to the depositors pro rata according to their deposits, with an increase in the per cent for each five-year service period.

In some plants an "auto teller," or automatic saving machine, is installed. From 25 cents to \$25 can be deposited in the machine, which stamps the amount on the deposit slip and returns the slip to the depositor. When deposits are made in this way employers do not know the amount of the individual employee's savings, a feature which appeals to many employees. It also has the advantage that it affords a convenient way of depositing small amounts. A taxi company reported that drivers find it particularly convenient, as they deposit their tips at the end of each shift. Another company stated that various savings schemes had been tried which had not proved successful, but that the auto teller was used by large numbers.

There were 72 loan funds maintained either by the company or as a part of the savings plan. Some firms have a considerable amount of money available for emergency loans. Repayment is nearly always made through pay-roll deductions.

A number of the savings plans are linked up with the profit-sharing or the stock-ownership plan. An example is that of a company having about 10,000 employees. The thrift program includes a wage-dividend plan, purchase of company stock, a savings and loan fund, and a building and loan and housing plan. The wage-dividend plan is based on wages and length of service, the dividends upon common stock over \$1 a share which are declared during the calendar year being used for these disbursements. About 85 per cent of the employees are eligible to participate in this plan; approximately 60 per cent own company stock; the savings and loan association has 5,300 members; and nearly a thousand have been assisted in building or purchasing homes by the employees' realty corporation.

Building and Loan Associations

THIRTY-NINE companies reported building and loan associations or some plan of giving financial aid in building or buying homes. In addition to these there are a number of firms which have no special plan which is followed in all cases but who give both advice and financial help to their employees who wish to own their own homes.

There are certain features that are common to the majority of building and loan plans. A year's service with the firm is generally required before financial aid is given, and the majority of the plans require that the buyer have 10 per cent of the value of the property for an initial payment in order to receive the help of the association or the company.

Although company housing plans are usually limited to some one district, several companies allow employees to choose lots wherever

they wish, feeling that it is better for the employee to choose the locality in which he shall live rather than to be restricted to a district chosen by the company.

Legal Aid and Advice as to Investments and Expenditures

NEARLY two-thirds of the companies reported that their employees have the privilege of coming to them for free legal advice. In many of the larger establishments the firm has its own legal staff, or it may be there is a single attorney or some member of the firm who is qualified who gives part of his time to this work.

A company with many thousands of employees has a staff of lawyers who give free advice in every kind of personal, domestic, or business difficulty, the object being to keep employees out of trouble, or, if already in it, to defend them so far as they are in the right. The work of the legal staff includes everything done in any law office, including counsel, advice, examination and preparation of legal papers or documents, and representation of employees in court when the merits of the case warrant this. The effect of this work is considered to be important in fostering the good will of the working force.

On the other hand, a number of companies which reported that legal advice was given if requested evidently did not make much of a feature of this service, while a number stated that employees were not encouraged to ask for it.

Advice as to investments and expenditures is given in many instances. The legal department usually advises employees as to investments. In a number of cities bureaus or commissions connected with the city chamber of commerce have been established for the purpose of protecting the public from fraudulent schemes and dishonest advertising and merchandising methods. Industrial establishments which support these bureaus often refer their employees to them for advice. In some plants men are appointed in different departments whose business it is to keep informed on these matters and give advice to other employees when it is requested. They work with the Better Business Bureau or the Industrial Protective Association and can get disinterested advice at any time as to the merit of proposed investments.

Cooperative Buying and Discounts

COOPERATIVE stores were found in only 21 instances, but a large proportion of the companies either promoted the cooperative buying of certain commodities or allowed employees a discount on their own products or on supplies bought by them. Rubber boots, safety or work shoes, overalls, tools, and similar articles are often bought in quantities and sold at cost; and many companies buy coal and sell at reduced prices to their employees or make an arrangement with coal dealers whereby employees can have coal charged to the company and pay for it through pay-roll deductions, in this way making it possible for employees to buy their winter's supply when it is cheapest. Two hundred and thirty-seven firms reported that a special discount is allowed employees on company goods. Department stores without exception allow a discount on merchandise ranging from 10 to 25 per cent, with stated times at which employees may

make their purchases, and sometimes special sales are arranged for them.

A cooperative store maintained by the employees of an insurance company has been in successful operation for a number of years. This store saves employees about 25 per cent on purchases and the business averages nearly \$18,000 a month. Another large office force runs a cooperative store where clothing and furniture and some groceries, auto supplies, etc., can be purchased at about 10 per cent above the wholesale price, this margin covering the salary of the man in charge and other expenses. The company gives the space for the store and light and heat. The employees' thrift club of 600 members in a metal manufacturing plant runs a cooperative store which started on a small scale but is now very successful. The club also has charge of the employees' lunch room. The company pays the running expenses on both projects and no attempt is made to make any profit, prices being reduced if any surplus is shown.

Forty-one companies reported that cooperative buying had been discontinued. In the majority of cases it was given up shortly after the close of the World War, having served its purpose during that time and being no longer needed. Some feel, however, that the establishment of chain stores has largely done away with the necessity for cooperative buying, and many companies do not favor it, as, if it is done on a large scale, the merchants of the community feel that it is unfair.

Other Plans for Encouraging Thrift

AMONG other methods which are designed to teach employees the importance of saving and to allow them to have a share in the prosperity of the enterprise are profit-sharing and stock-ownership plans and bonuses for length of service or for regular attendance. As a survey of profit-sharing and stock-ownership plans was beyond the scope of the present study, little information was secured beyond the fact that some such system was in effect. About 50 companies had some plan by which the employees shared in the profits either through a regular profit-sharing plan, through a bonus system, or by distribution of company stock, while 123 companies reported that they have a special plan for the sale of stock to employees. The distribution of thrift literature is another method of educating employees to the desirability of planning in time for the inevitable rainy day. The pay envelope and the plant paper furnish convenient means for reminding employees of the advisability of saving, and various companies use the services of visiting nurses or other personnel workers to give practical demonstrations in economics as related to workmen's incomes.

LABOR LAWS

Weekly Rest Law of Colombia¹

ON NOVEMBER 16, 1926, the Colombian Legislature passed a law (No. 57) requiring all private and public industrial or commercial establishments to grant their wage earners and salaried employees one day of rest for every six days of work. The law establishes Sunday as the rest day and stipulates that the rest period shall be at least 24 hours long. The provisions of this law shall apply also to domestic servants.

In certain specified instances, as in continuous industries and in those in which Sunday closing would work hardship to the public, the rest may be given on another day of the week than Sunday (either to the entire personnel simultaneously or in shifts), or from Sunday noon until Monday noon, or two half days a week may be given.

In order to remain open all day Sunday proprietors of establishments must obtain the authorization of the Ministry of Industry. No worker may be employed on his rest day without his consent, and in case of being so employed he may choose between a compensatory rest day or not less than double pay for the time worked.

The law specifies that all who work for the State or municipalities shall be compensated for national and religious holidays in addition to their days of rest.

Violations of the law are punishable by a fine of 20 pesos,² and any who may hinder the Labor Office inspectors in the enforcement of the law are to be fined a similar amount.

Establishments allowed to remain open on Sundays must post in a conspicuous place a placard showing the names of their workers and the days on which they have their weekly rest.

¹ Colombia. *Diario Oficial*, Bogota, Nov. 17, 1926, pp. 207, 208.

² The exchange rate of the peso in 1926 = 98.40 cents.

LABOR ORGANIZATIONS AND CONGRESSES

International Trade-Union Congress, 1927¹

THE fourth annual congress of the International Federation of Trade-Unions was held in Paris, August 1-6, 1927.

Among the various decisions reached by the congress were the following:

That in view of the growing importance of nonmanual workers and civil servants in economic and political life, it is highly desirable to win over such workers to the trade-union international and to facilitate their close cooperation with the manual workers. For this purpose the trade-union movement all over the world should endeavor to induce nonmanual workers to affiliate and should stimulate the formation of such unions.

In unionizing nonmanual workers and civil servants attention should be paid to their special position, their working conditions, their social status, and their mentality. These workers should not, against their will, be incorporated into organizations of manual workers. Cooperation should be encouraged, however, in cases in which manual and nonmanual workers have already formed successful joint organizations.

The International Federation of Trade-Unions will be allowed to initiate international relief action only when "several trade or industrial unions of the same country are simultaneously involved in economic conflicts of such an extent that the means requisite to conduct them can not be raised either in the country, or by the international trade secretariat to which these unions are affiliated." In exceptional cases, however, the International Federation of Trade-Unions may organize relief action when so large a number of the workers in a trade or industry are concerned in the conflict that the resources of the country itself or of the international trade-union secretariat are insufficient.

"International strike breaking must be prevented." Those who, despite the warnings of their organizations, are found guilty of strike breaking shall be expelled from their organizations. In exceptional cases the national center concerned in a labor conflict may appeal to the International Federation of Trade-Unions for the prevention of the transportation of certain commodities to the country in which such conflict is being carried on.

The congress urged its affiliated organizations to take all the steps that in their judgment might seem appropriate to maintain or recover the eight-hour day and demanded that the Governments ratify the Washington convention on that subject. Strong opposition was expressed to separate agreements between Governments on the eight-hour day without reference to the International Labor Office, and

¹ International Federation of Trade-Unions, Amsterdam. Press Report No. 29, Aug. 11, 1927, pp. 3-9.

the practice of nations in permitting numerous exceptions when ratifying the Washington convention was forcefully condemned.

Governments were called upon by the congress to act in accordance with recommendation of the 1927 International Economic Conference that "Government institutions, trade organizations, and public opinion give special attention to measures of a kind calculated to insure to the individual the best, the healthiest, and the most worthy employment, such as vocational selection, guidance and training, the due allotment of time between work and leisure, methods of remuneration giving the worker a fair share in the increase of output, and general conditions of work and life favorable to the development and preservation of his personality."

The congress held that it is the duty of the International Federation of Trade-Unions to carry on a perpetual peace propaganda and to use all available means (placards, pamphlets, etc.) for this campaign. A special appeal was made to mothers and teachers to imbue the rising generation with the "spirit of universal peace" in order "that international brotherhood may soon become a living reality."

The following is the program, in part, recommended by the congress to its national sections:

Promotion of general economic progress.—The national centers should wage war on "protectionist commercial policy and on all other measures tending to give rise to economic and commercial enmity."

Scientific management should be indorsed only on condition that representatives of the wage earners engaged in the undertaking or of the competent labor organizations invariably cooperate in such scientific management and that it shall result, step by step, in the increase of real wages and the consequent expansion of the market.

National and international cartels should in the future be brought more under trade-union supervision and control. Attempts to keep prices up and to raise prices regardless of the needs of the great mass of consumers must be fought in every possible way by the trade-unions, especially by securing the establishment in all countries of government cartel control offices, of public registers of cartels, and of courts for the control of cartels on which the trade-unions shall have representatives.

The economic importance of the home market must be fully recognized.—Trade-unions should strive to lower prices or to raise wages or, preferably, to do both, in order to increase the mass consumption of the products of improved labor and economic processes.

Resolutions of International Conference of Woman Workers¹

AT THEIR Paris conference, July 29-30, 1927, the woman wage earners affiliated with the International Federation of Trade-Unions adopted a resolution in favor of the protection of woman as a worker and of the woman worker as a woman, declaring the solidarity of organized woman workers with all the workers, and expressing the earnest desire to strive enthusiastically with all workers "for the regeneration of the world."

¹ International Federation of Trade Unions, Amsterdam. Press Report No. 29, Aug. 11, 1927, pp. 11, 12.

Woman workers all over the world were urged to become trade-unionists. The conference also insisted that the wages and labor conditions of persons engaged in home work should "at least be placed on equality with those of the factory workers of the same trade"; and, furthermore, that "in all countries the social legislation of the land shall be applied in its entirety to all persons engaged in home work." This it was declared could only be accomplished through attaching the greatest importance to the trade-union organization of such persons.

It was also demanded that a convention be issued by the International Labor Conference of 1928 "establishing methods for fixing minimum wages for home workers."

Organization of Cuban Federation of Labor

THE Cuban Federation of Labor was organized in Habana on May 22, 1927, by a group of workers representing various industries, according to the September, 1927, issue of the Pan American Union Bulletin. The aims of the organization will be to improve the economic and social conditions of the workers and thereby assist in developing industrial activities. The federation will aid its members during periods of unemployment, disability, and illness, when such cases are not provided for under the workmen's compensation law.

The Cuban Federation of Labor is affiliated with the Pan American Federation of Labor.

HOUSING

Building Permits in Representative Cities

THE Bureau of Labor Statistics presents herewith its semiannual report of building operations in cities having a population of 100,000 or over. Reports were received for the first half of 1927 from 80 cities, as compared with 78 in the first half of 1926.

Of the 80 cities reporting for the first half of 1927, over 94 per cent forwarded their schedules by mail either direct to the bureau or to cooperating State bureaus. For the other 6 per cent of the cities schedules were compiled by agents of the bureau, from records kept in the offices of the local building officials.

The bureau's questionnaire asked for the number and cost of each of the different kinds of buildings for which permits were issued in this period. The costs reported are those stated by the prospective builder at the time of applying for a permit, and information was collected only for buildings erected inside the city limits of the municipalities selected, since the city building officials have no authority outside the corporate limits. This, of course, leaves large suburban developments unaccounted for.

Table 1 shows the total number of new buildings and the estimated cost of each of the different kinds of new buildings for which permits were issued in the 80 cities for which schedules were received for the six months ending June 30, 1927, the per cent that each kind forms of the total number, the per cent that the cost of each kind forms of the total cost, and the average cost per building.

TABLE 1.—NUMBER AND COST OF NEW BUILDINGS ACCORDING TO PERMITS ISSUED IN 80 CITIES, JANUARY 1 TO JUNE 30, 1927, BY KIND OF BUILDING

Kind of building	Buildings for which permits were issued				
	Number	Per cent of total	Estimated cost		
			Amount	Per cent of total	Average per building
<i>Residential buildings</i>					
One-family dwellings.....	65,188	39.1	\$319,616,929	23.1	\$4,903
Two-family dwellings.....	11,618	7.0	98,141,450	7.1	8,447
One-family and two-family dwellings with stores.....	1,501	.9	16,207,139	1.2	10,798
Multi-family dwellings.....	6,515	4.0	355,957,616	25.7	54,637
Multi-family dwellings with stores.....	707	.4	39,384,233	2.8	55,706
Hotels.....	88	.1	28,178,044	2.0	320,205
Lodging houses.....	62	(1)	807,741	.1	13,028
All other.....	52	(1)	13,307,372	1.0	255,911
Total.....	85,731	51.5	\$71,600,524	62.9	10,167

¹ Less than one-tenth of 1 per cent.

TABLE 1.—NUMBER AND COST OF NEW BUILDINGS ACCORDING TO PERMITS ISSUED IN 80 CITIES, JANUARY 1 TO JUNE 30, 1927, BY KIND OF BUILDING—Continued

(Kind of building	Buildings for which permits were issued				
	Number	Per cent of total	Estimated cost		
			Amount	Per cent of total	Average per building
<i>Nonresidential buildings</i>					
Amusement buildings.....	409	.2	\$60,474,640	4.4	\$147,860
Churches.....	339	.2	18,637,435	1.3	54,978
Factories and workshops.....	1,489	.9	55,251,240	4.0	37,106
Public garages.....	1,580	.9	33,539,770	2.4	21,228
Private garages.....	62,827	37.7	22,662,602	1.6	361
Service stations.....	1,663	1.0	4,563,252	.3	2,744
Institutions.....	100	.1	18,405,111	1.3	184,051
Office buildings.....	579	.3	128,472,870	9.3	221,888
Public buildings.....	124	.1	20,003,638	1.4	161,330
Public works and utilities.....	157	.1	12,481,434	.9	79,500
Schools and libraries.....	244	.1	55,616,179	4.0	227,935
Sheds.....	5,084	3.1	1,903,121	.1	374
Stables and barns.....	79	(¹)	265,490	(¹)	3,361
Stores and warehouses.....	4,410	2.6	79,353,886	5.7	17,994
All other.....	1,695	1.0	3,004,252	.2	1,772
Total.....	80,770	48.5	514,634,920	37.1	6,371
Grand total.....	166,510	100.0	1,386,235,444	100.0	8,326

¹ Less than one-tenth of 1 per cent.

In these 80 cities, \$1,386,235,444 was spent for new buildings in the first half of 1927. Of this amount \$871,600,524, or 62.9 per cent, was spent for residential buildings and \$514,634,920, or 37.1 per cent, for nonresidential buildings.

Of the amount expended for residential buildings the greatest amount, \$355,957,616, or 25.7 per cent of the amount spent for all new buildings, was expended for apartment houses. Although only \$319,616,929, or 23.1 per cent, was spent for one-family dwellings, more permits were issued for one-family dwellings in these 80 cities during this period than for any other class of building, there being 65,188 of these homes projected during the first half of this year. The next most numerous class of building was private garages, accounting for 62,827 buildings. Two-family dwellings accounted for 7.1 per cent of the whole amount expended.

In the nonresidential group more money was expended for office buildings than for any other class of structure. The cost of office buildings during the six months ending June 30, 1927, was \$128,472,870, or 9.3 per cent of all moneys used during that period for new buildings. Next in importance in the nonresidential group was "stores and warehouses," accounting for 5.7 per cent of the total amount disbursed.

The average cost of one-family dwellings in these 80 cities was \$4,903, as compared with \$4,777 in the first half of 1926. Hotels cost more per building than any other class of structure, the average cost of the 88 hostleries for which permits were issued in this period being \$320,205. Schools and libraries ranked higher in average cost than any other kind of nonresidential building, followed in order by office buildings and institutions.

The average cost of all new buildings was \$8,325. The average cost of residential buildings was \$10,167 and of nonresidential buildings \$6,371. The average cost of nonresidential buildings, however, is heavily weighted with that of private garages, which was only \$361. Excluding private garages, the average cost of nonresidential buildings was \$27,405.

Families Provided for

TABLE 2 shows the number and per cent of families provided for by each of the different kinds of dwellings for which permits were issued in 78 identical cities in the first half of 1926 and the first half of 1927.

TABLE 2.—NUMBER AND PER CENT OF FAMILIES TO BE HOUSED IN NEW DWELLINGS FOR WHICH PERMITS WERE ISSUED IN 78 IDENTICAL CITIES DURING THE FIRST HALF OF 1926 AND THE FIRST HALF OF 1927, BY KIND OF DWELLING

Kind of dwelling	Number of dwellings for which permits were issued		Families provided for			
			Number		Per cent	
	First half of 1926	First half of 1927	First half of 1926	First half of 1927	First half of 1926	First half of 1927
One-family dwellings.....	74,029	64,747	74,029	64,747	36.7	34.6
Two-family dwellings.....	11,864	11,577	23,728	23,154	11.8	12.4
One-family and two-family dwellings with stores.....	2,032	1,498	3,310	2,471	1.6	1.3
Multi-family dwellings.....	6,806	6,478	94,330	88,809	46.8	47.4
Multi-family dwellings with stores.....	548	706	6,288	8,052	3.1	4.3
Total.....	95,279	85,006	201,685	187,233	100.0	100.0

There were 187,233 families provided with homes in new buildings in these 78 cities in the first half of 1927, as compared with 201,685 in the first half of 1926, a decrease in housing units of 7.2 per cent.

One-family dwellings, which accommodated 74,029 families, or 36.7 per cent of all families provided for during the first half of 1926, provided for only 64,747 families, or 34.6 per cent, in the first six months of 1927. Apartment houses, on the other hand, provided for 47.4 per cent of all families housed in new buildings during the first half of 1927 and 46.8 per cent in the corresponding period of 1926.

Table 3 shows the number and per cent of families provided for in the different kinds of dwellings in the 65 identical cities for which reports were received for the first six months of each of the years 1922 to 1927. For convenience, one-family dwellings and two-family dwellings with stores are grouped with two-family dwellings, and multi-family dwellings with stores are grouped with multi-family dwellings.

TABLE 3.—NUMBER AND PER CENT OF FAMILIES PROVIDED FOR IN THE DIFFERENT KINDS OF DWELLINGS IN 65 IDENTICAL CITIES IN THE FIRST HALF OF 1922, 1923, 1924, 1925, 1926, AND 1927

Period	Number of families provided for in—				Per cent of families provided for in—		
	One-family dwellings	Two-family dwellings	Multi-family dwellings	All classes of dwellings	One-family dwellings	Two-family dwellings	Multi-family dwellings
First half of—							
1922-----	63,892	32,351	51,006	147,249	43.4	22.0	34.6
1923-----	77,875	39,314	77,826	195,015	39.9	20.2	39.9
1924-----	82,514	50,904	69,619	203,037	40.6	25.1	34.3
1925-----	87,783	39,320	80,291	207,394	42.3	19.0	38.7
1926-----	71,818	26,727	100,201	198,746	36.1	13.4	50.4
1927-----	57,899	24,204	95,448	177,551	32.6	13.6	53.8

In the first half of 1922 in these 65 cities 147,249 families were housed in new buildings. The number steadily rose until a peak of 207,394 was reached in 1925. This was 40.8 per cent more than in 1922. The number decreased in the first six months of 1926 to 198,746 and during the first half of 1927 to 177,551. The latter figure is the lowest since 1922 and only 20.6 per cent higher than in that year.

In the first half of 1922 one-family dwellings provided 43.4 per cent of all housing units, while multifamily dwellings provided but 34.6 per cent. In the first half of 1927 the apartment-house percentage had risen to 53.8, while the single-family-dwelling percentage had fallen to 32.6.

While the total number of families provided for during the first half of 1927 increased 20.6 per cent as compared with the first half of 1922, the number of families provided for in apartment houses increased 87.1 per cent. In contrast the number of families housed in new one-family dwellings decreased 9.4 per cent.

Building Trend, 1926-27

TABLE 4 shows the number and cost of the different kinds of buildings for the 78 identical cities from which reports were received for the first half of 1926 and of 1927 and the per cent of increase or decrease in the number and in the cost in the first half of 1927 as compared with the first half of 1926.

TABLE 4.—NUMBER AND COST OF NEW BUILDINGS FOR WHICH PERMITS WERE ISSUED IN 78 CITIES DURING THE FIRST HALF OF 1926 AND 1927, BY KIND OF BUILDING

Kind of building	New building for which permits were issued in first half of—				Per cent of change, 1927 as compared with 1926	
	1926		1927			
	Number	Cost	Number	Cost	Number	Cost
Residential buildings						
One-family dwellings.....	78,493	\$374,929,350	64,747	\$317,855,774	-18.5	-15.2
Two-family dwellings.....	12,048	102,929,851	11,577	97,745,680	-3.9	-5.0
One-family and two-family dwellings with stores.....	2,056	21,117,089	1,498	16,186,639	-27.1	-23.4
Multi-family dwellings.....	6,888	367,478,406	6,478	355,254,316	-6.0	-3.3
Multi-family dwellings with stores.....	550	31,264,464	706	39,380,733	+28.4	+26.0
Hotels.....	119	72,661,358	87	28,138,044	-26.9	-61.3
Lodging houses.....	9	329,400	62	807,741	+588.9	+145.2
All other.....	65	14,420,800	52	13,307,372	-20.0	-7.7
Total.....	100,218	985,130,718	85,207	809,476,290	-15.0	-12.6
Nonresidential buildings						
Amusement buildings.....	325	48,689,729	406	60,383,740	+24.9	+24.0
Churches.....	326	15,193,610	336	18,543,435	+3.1	+22.0
Factories and workshops.....	1,502	73,019,325	1,479	54,952,840	-1.5	-24.7
Public garages.....	1,663	27,937,809	1,574	33,403,270	-5.4	+19.6
Private garages.....	65,769	27,743,758	62,426	22,537,992	-5.1	-18.8
Service stations.....	1,318	4,770,230	1,642	4,492,602	+24.6	-5.8
Institutions.....	79	14,277,980	98	18,234,111	+24.1	+27.7
Office buildings.....	534	87,882,638	574	128,426,700	+7.5	+46.1
Public buildings.....	89	9,904,652	124	20,003,638	+39.3	+102.0
Public works and utilities.....	179	17,511,186	157	12,481,434	-22.3	-28.7
Schools and libraries.....	279	58,076,620	239	54,995,314	-14.3	-5.3
Sheds.....	6,027	2,673,129	4,901	1,885,963	-18.7	-29.5
Stables and barns.....	112	315,446	79	265,490	-29.5	-15.8
Stores and warehouses.....	5,342	94,935,790	4,347	78,843,311	-18.6	-17.0
All other.....	1,584	6,723,309	1,691	2,984,752	+6.8	-55.6
Total.....	85,128	489,655,211	80,073	512,434,592	-5.9	+4.7
Grand total.....	185,346	1,474,785,929	165,280	1,381,910,891	-10.8	-6.3

In the 78 cities from which reports were received for both periods a

a decrease in both the number and cost of factories and workshops, private garages, public works and utilities, schools and libraries, sheds, stables and barns, and stores and warehouses. Service stations and "all other nonresidential" showed an increase in number but a decrease in amount expended, while public garages showed a decrease in number but an increase in the amount expended.

Per Capita Expenditure for Buildings

TABLE 5 shows the per capita expenditure for new buildings, new housekeeping dwellings, additions and repairs, and for all buildings in the 72 cities in which either the population was estimated by the Census Bureau for 1927 or a State census was made in 1925.

TABLE 5.—PER CAPITA EXPENDITURE FOR NEW BUILDINGS, NEW HOUSEKEEPING DWELLINGS, AND FOR ADDITIONS AND REPAIRS TO OLD BUILDINGS IN 72 CITIES IN THE FIRST SIX MONTHS OF 1927

City and State	Estimated population July 1, 1927	Per capita expenditure for—			Rank in per capita expenditure for all buildings	Per capita expenditure for new housekeeping dwellings
		New buildings	Repairs, additions, and alterations	All buildings		
Albany, N. Y.	119,500	\$44.55	\$12.88	\$57.43	9	\$30.39
Baltimore, Md.	819,000	15.80	3.77	19.57	56	10.85
Birmingham, Ala.	215,400	44.55	5.33	49.88	10	28.10
Boston, Mass.	793,100	25.74	6.94	32.68	27	13.57
Buffalo, N. Y.	550,000	24.74	1.44	26.18	40	12.44
Cambridge, Mass.	123,900	29.89	3.67	33.57	25	17.12
Camden, N. J.	133,100	19.89	2.82	22.71	51	9.21
Canton, Ohio	113,300	14.32	2.40	16.72	61	10.08
Chicago, Ill.	3,100,500	65.94	1.86	67.80	6	42.44
Cincinnati, Ohio	412,200	27.55	5.24	32.80	26	23.66
Cleveland, Ohio	984,500	16.67	3.47	20.14	54	9.58
Columbus, Ohio	291,100	40.91	4.41	45.31	13	22.03
Dallas, Tex.	208,600	18.76	4.26	23.02	48	6.55
Dayton, Ohio	180,400	26.07	6.59	32.66	28	14.08
Denver, Colo.	289,800	20.19	3.40	23.59	44	12.94
Des Moines, Iowa	148,900	8.81	.88	9.69	67	5.37
Detroit, Mich.	1,334,500	52.74	6.26	59.01	7	28.41
Duluth, Minn.	114,700	14.62	5.62	20.24	53	7.14
El Paso, Tex.	113,500	1.92	2.34	4.26	72	1.42
Fall River, Mass.	132,600	8.20	1.43	9.62	68	5.76
Flint, Mich.	142,700	79.21	4.24	83.45	3	44.51
Fort Worth, Tex.	163,600	67.07	22.32	89.40	2	40.39
Grand Rapids, Mich.	158,700	25.09	4.40	29.48	30	15.55
Hartford, Conn.	168,300	40.40	4.89	45.28	14	20.00
Indianapolis, Ind.	374,300	32.62	1.12	33.73	24	13.51
Jersey City, N. J.	321,500	14.88	1.83	16.70	62	9.49
Kansas City, Kans.	117,500	8.03	.66	8.68	69	3.62
Kansas City, Mo.	383,100	20.49	2.48	22.97	49	14.77
Louisville, Ky.	320,100	40.91	3.00	43.92	15	15.93
Lowell, Mass.	110,296	2.89	1.53	4		

TABLE 5.—PER CAPITA EXPENDITURE FOR NEW BUILDINGS, NEW HOUSEKEEPING DWELLINGS, AND FOR ADDITIONS AND REPAIRS TO OLD BUILDINGS IN 72 CITIES IN THE FIRST SIX MONTHS OF 1927—Continued

City and State	Estimated population July 1, 1927	Per capita expenditure for—			Rank in per capita expenditure for all buildings	Per capita expenditure for new house-keeping dwelling
		New buildings	Repairs, additions, and alterations	All buildings		
Providence, R. I.	280,600	\$37.29	\$5.98	\$43.27	17	\$14.68
Reading, Pa.	114,500	18.63	4.47	23.11	47	7.20
Richmond, Va.	191,800	25.12	3.22	28.34	34	15.35
Rochester, N. Y.	234,500	30.06	3.68	33.74	23	17.67
St. Louis, Mo.	839,200	16.01	2.18	18.19	60	9.66
St. Paul, Minn.	250,100	20.30	2.92	23.22	46	11.96
Salt Lake City, Utah	135,700	18.15	1.57	19.72	55	14.77
San Antonio, Tex.	211,400	27.93	1.19	29.12	31	13.09
San Diego, Calif.	115,300	65.00	5.65	70.65	5	40.83
San Francisco, Calif.	576,000	39.64	3.90	43.55	16	29.87
Scranton, Pa.	143,900	23.03	1.89	24.92	43	4.42
Somerville, Mass.	101,600	18.50	2.49	20.99	52	10.28
Spokane, Wash.	109,000	12.11	1.57	13.68	63	10.25
Springfield, Mass.	147,400	28.17	6.38	34.55	22	19.75
Syracuse, N. Y.	197,000	41.64	4.64	46.24	12	24.68
Tacoma, Wash.	107,200	23.62	3.00	26.62	38	13.97
Tampa, Fla.	107,800	22.68	4.25	26.94	37	9.65
Toledo, Ohio	304,000	24.05	4.76	28.80	33	13.46
Trenton, N. J.	136,700	19.51	3.21	22.73	50	9.08
Tulsa, Okla.	150,000	45.56	1.82	47.38	11	17.48
Utica, N. Y.	103,400	11.07	1.91	12.98	64	7.74
Washington, D. C.	540,000	37.63	4.09	41.72	19	23.74
Wilmington, Del.	126,400	22.07	3.98	26.05	42	10.03
Worcester, Mass.	195,500	20.45	6.16	26.61	39	13.60
Yonkers, N. Y.	118,800	124.96	6.22	131.19	1	102.51
Youngstown, Ohio	169,400	27.70	1.15	28.85	32	17.12
Total, 80 cities	32,280,223	42.94	4.28	47.22		25.69

¹ Including 8 cities not shown in distribution.

Of the 80 cities from which reports were received for the first half of 1927 estimates of population as of July 1, 1927, were made by the Bureau of the Census for 70. For two others State census figures of 1925 were used. As the Census Bureau did not estimate the population for the other 8 cities, and as they were not in States where a census was made in 1925, no population figures were obtainable for that date. For this reason no data are presented in this table for the cities of Akron, Atlanta, Bridgeport, Houston, Los Angeles, Oklahoma City, Portland (Oreg.), or Seattle. Data for these cities are, however, included in the totals, the 1

\$83.45. The lowest amount was in El Paso, Tex., where only \$4.26 was spent in this period.

Housing in Relation to Population

TABLE 6 gives detailed information for building permits issued in 78 cities in the first half of 1926 and for 80 cities in the first half of 1927. Part 1 of the table gives the number and cost of each kind of dwelling, the number of families provided for by each type of house, and the ratio of families provided for to each 10,000 of population.

It will be noted that the ratio of families provided for is based both on the 1920 census and on the population as estimated by the Census Bureau for the specified year.

The 78 cities from which reports were received for the first half of 1926 provided for 207,231 families, or at the rate of 73.2 families to each 10,000 of population, according to the 1920 census, or of 65.6 families to each 10,000 inhabitants, according to the population as estimated by the Census Bureau for July 1, 1926. The 80 cities reporting for the first half of 1927 provided for only 187,970 families, a ratio of 66 families to each 10,000 of population, according to the 1920 census, or 58.2 according to the 1927 estimate of population.

The following cities were the five leading home builders in 1926 and in 1927. The ratio shown is based on the population as estimated for the specified year.

1926		1927	
San Diego.....	157. 1	Yonkers.....	172. 4
Yonkers.....	144. 8	San Diego.....	132. 8
Houston.....	125. 1	Flint.....	121. 3
Detroit.....	116. 9	Fort Worth.....	110. 7
New York.....	114. 7	New York.....	99. 2

Part 2 of the table shows the number and the cost of nonresidential buildings in each of the cities reporting.

Part 3 gives the number and the cost of additions and repairs to old buildings, the grand total of the number and cost of new buildings and repairs to old buildings, the number and cost of installations, and the rank in cost of construction of the cities reporting.

During the first half of 1927 there were 97,179 permits issued, in the 80 cities reporting, for repairs and alterations to existing buildings at a cost of \$138,154,250. The number of permits for repairs in the 78 cities reporting in the like period of 1926 was 90,364 and the expenditure for such work was \$134,898,195.

The cities which reported on installations in the first six months of 1927 showed 36,645 such permits and an expenditure of \$18,485,848. The cities reporting for the first half of 1926 issued permits for 34,907 installations to cost \$19,534,750.

The grand total for all new buildings, together with repairs to old buildings, was 263,689 in the first half of 1927 and 275,710 in the first half of 1926. The total estimated cost of these operations in the 80 cities reporting was \$1,524,389,694 in the period scheduled in 1927, and \$1,609,684,124 in the corresponding period of 1926.

Following is a list of the five leading cities for each of the periods and the total amount expended for construction work in each city:

	1926	1927
New York.....	\$510,263,696	\$490,119,588
Chicago.....	183,577,891	210,210,475
Detroit.....	96,204,092	78,742,327
Philadelphia.....	70,379,825	61,683,600
Los Angeles.....	63,161,395	58,192,977

It will be noted that Chicago was the only city of these five leading cities which spent more for construction during the first half of 1927 than during the first half of 1926.

1925	Denver, Colo.	3,434,500	789	39	301,500	78	10	252,452	26	18	1,355,500	700	5	104,000	30
1926	Des Moines, Iowa	3,397,300	714	12	91,000	24	6	20,000	12	3	203,000	150	2	4,040,706	666
1927	Detroit, Mich.	3,801,800	244	3	23,400	6	10	14,714,787	3,672	275	45,000	4,569	75	2,148,162	412
1928	Duluth, Minn.	28,806,973	163	1,836	14,714,787	3,672	15	123,790	22	306	10,685,362	3,525	1	14,000	4
1929	El Paso, Tex.	16,288,857	274	1,195	8,605,481	2,390	2	6,800	2	6	105,460	103	1	9,500	4
1930	Fall River, Mass.	1,323,919	169	1	6,800	2	1	8,000	2	7	33,350	21	1	130,184	37
1931	Flint, Mich.	175,713	47	22	165,100	44	1	40,000	4	10	104,800	30	1	30,000	6
1932	Fort Worth, Tex.	281,950	60	22	115,850	32	3	41,386	4	9	144,241	53	1	23,143	10
1933	Grand Rapids, Mich.	477,805	88	16	32,880	8	7	56,296	10	29	335,805	119	34	304,100	121
1934	Hartford, Conn.	2,415,755	622	30	190,402	60	6	201,415	27	36	6,000	4	1	677,000	221
1935	Houston, Tex.	5,933,926	1,599	13	93,591	26	7	70,400	11	1	2,362,200	844	17	542,000	127
1936	Indianapolis, Ind.	4,765,054	1,110	291	400,000	582	19	16,000	4	53	1,289,771	347	11	120,000	40
1937	Jersey City, N. J.	5,277,219	962	18	107,850	36	7	232,500	24	52	3,331,500	954	9	587,000	131
1938	Kansas City, Kans.	2,812,025	639	8	51,000	16	2	147,500	22	30	2,154,000	668	2	125,000	24
1939	Kansas City, Mo.	2,410,750	595	128	1,205,000	256	2	15,000	8	2	7,500	10	2	127,000	26
1940	Los Angeles, Calif.	5,343,317													

TABLE 6.—NUMBER AND ESTIMATED COST OF BUILDINGS (NEW CONSTRUCTION, AND REPAIRS, ALTERATIONS, AND ADDITIONS TO OLD BUILDINGS) COVERED BY PERMITS ISSUED IN THE FIRST HALF OF 1926 AND OF 1927, BY INTENDED USE OF BUILDINGS—Continued

PART 1.—NEW RESIDENTIAL BUILDINGS—Continued

City and State	First half of each year	Housekeeping dwellings											
		One-family dwellings			Two-family dwellings			One-family and two-family dwellings with stores			Multi-family dwellings		
		Num-ber	Cost	Fami-lies	Num-ber	Cost	Fami-lies	Num-ber	Cost	Fami-lies	Num-ber	Cost	Fami-lies
New Orleans, La.	1926	315	\$1,162,500	315	219	\$908,215	438	40	\$285,128	75	43	\$312,300	130
	1927	252	1,035,621	252	276	907,845	552	27	233,669	45	26	730,846	84
New York, N. Y.	1926	816	5,893,050	816	709	7,178,952	1,418	99	1,118,698	181	884	75,847,500	18,936
The Bronx	1927	676	5,115,100	676	742	7,705,500	1,484	28	399,700	50	617	63,296,000	15,433
Brooklyn	1926	3,010	18,602,550	3,010	1,227	11,886,700	2,454	458	5,886,000	916	1,344	64,467,000	16,902
	1927	2,529	16,822,300	2,529	1,415	14,467,500	2,830	462	5,964,000	924	862	38,605,500	9,646
Manhattan	1926	4	762,000	4	2	70,000	4				105	34,855,000	5,266
	1927	2	75,500	2	2	28,500	4				78	32,140,000	4,306
Queens	1926	6,703	39,432,600	6,703	978	8,932,650	1,956	603	5,440,200	988	530	18,842,000	5,788
	1927	6,197	37,285,200	6,197	1,329	11,033,550	2,658	295	2,723,500	506	585	26,079,100	7,879
Richmond	1926	657	3,023,690	657	43	270,300	86	23	171,650	32	1	13,000	4
	1927	731	3,398,179	731	51	365,600	102	35	323,000	57			
Norfolk, Va.	1926	171	721,150	171	5	14,100	10	3	25,000	6			

	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	21
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TABLE 6.—NUMBER AND ESTIMATED COST OF BUILDINGS (NEW CONSTRUCTION, AND REPAIRS, ALTERATIONS, AND ADDITIONS TO OLD BUILDINGS) COVERED BY PERMITS ISSUED IN THE FIRST HALF OF 1926 AND OF 1927, BY INTENDED USE OF BUILDINGS—Continued

PART 1.—NEW RESIDENTIAL BUILDINGS—Continued

City and State	First half of each year	Total families provided for	Population of city		Ratio of families provided for to each 10,000 of population based on—		Nonhousekeeping dwellings						Total new residential dwellings	
			Census of 1920	Census estimate for year specified	Census of 1920	Census estimate for year specified	Hotels	Lodging houses	Other	Number	Cost	Number	Cost	
Akron, Ohio.....	1926	1,062	208,435	(1)	51.0	---	1	\$862,972	---	---	---	1,045	\$5,964,255	
Albany, N. Y.....	1927	1,441	---	(1)	69.1	---	---	---	---	---	---	1,253	6,937,090	
Atlanta, Ga.....	1926	1,403	113,344	119,000	35.6	33.9	---	---	---	---	---	1,236	4,401,950	
Baltimore, Md.....	1927	269	200,616	119,500	23.7	22.5	---	---	---	---	---	201	3,932,000	
Birmingham, Ala.....	1926	1,108	733,826	808,000	55.2	---	---	---	---	---	---	814	3,161,097	
Boston, Mass.....	1927	3,073	733,826	808,000	67.1	---	---	---	---	---	---	881	3,509,460	
Bridgeport, Conn.....	1926	2,224	178,806	211,000	41.9	38.0	---	---	---	---	---	2,802	12,066,500	
Buffalo, N. Y.....	1927	1,844	748,060	819,000	103.1	87.4	3	1,605,750	---	---	---	2,129	8,909,000	
Cambridge, Mass.....	1926	1,825	143,535	215,400	102.1	84.7	---	---	---	---	---	1,572	5,788,845	
Camden, N. J.....	1927	2,062	143,535	215,400	27.6	26.2	3	1,458,000	---	---	---	1,390	6,146,384	
Canton, Ohio.....	1926	2,525	143,535	215,400	33.8	31.8	---	---	---	---	---	920	12,033,288	
Chicago, Ill.....	1927	1,117	506,775	544,000	8.2	19.8	---	---	---	---	---	91	12,340,803	
Cincinnati, Ohio.....	1926	284	506,775	544,000	19.8	---	---	---	---	---	---	165	554,55	

	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171
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TABLE 6.—NUMBER AND ESTIMATED COST OF BUILDINGS (NEW CONSTRUCTION, AND REPAIRS, ALTERATIONS, AND ADDITIONS TO OLD BUILDINGS) COVERED BY PERMITS ISSUED IN THE FIRST HALF OF 1926 AND OF 1927, BY INTENDED USE OF BUILDINGS—Continued

PART 1.—NEW RESIDENTIAL BUILDINGS—Continued

City and State	First half of each year	Total families provided for	Population of city		Ratio of families provided for to each 10,000 of population based on—		Nonhousekeeping dwellings						Total new residential dwellings	
			Census of 1920	Census estimate for year specified	Census of 1920	Census estimate for year specified	Hotels		Lodging houses		Other		Number	Cost
							Number	Cost	Number	Cost	Number	Cost		
New Orleans, La.	1926	1,042	387,219	419,000	24.9	24.9	1	\$20,000					646	\$2,871,793
New York, N. Y.: The Bronx	1927	958		424,400	24.7	22.6	1	631,304					387	3,081,285
Brooklyn	1926	22,754					1	20,000					2,543	90,073,300
	1927	18,415					2	1,950,000					2,080	80,359,300
Manhattan	1926	23,282					1	170,000					6,041	102,492,280
	1927	18,011					19	35,293,000					5,413	84,333,300
Queens	1926	4,274	5,620,048	5,924,000	120.9	114.7	8	9,206,000					149	78,145,500
	1927	4,312		5,970,800	105.3	99.2	2	161,000					103	43,682,000
Richmond	1926	15,855					3	227,500					8,844	74,588,450
	1927	17,779											8,440	79,367,880
Norfolk, Va.	1926	899	115,777	174,000	21.7	14.4							818	3,478,640
	1927	251		170,200	26.9	17.4					</			

BUILDING PERMITS IN REPRESENTATIVE CITIES

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	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2
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TABLE 6.—NUMBER AND ESTIMATED COST OF BUILDINGS (NEW CONSTRUCTION, AND REPAIRS, ALTERATIONS, AND ADDITIONS TO OLD BUILDINGS) COVERED BY PERMITS ISSUED IN THE FIRST HALF OF 1926 AND 1927, BY INTENDED USE OF BUILDINGS—Continued

PART 2.—NEW NONRESIDENTIAL BUILDINGS

City and state	First half of each year	Amusement and recreation places		Churches		Factories, shops, etc.		Garages (public)		Garages (private)		Gasoline and service stations		Institutions		Office buildings	
		Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost
Akron, Ohio.....	1926	2	\$18,350	6	\$176,500	11	\$343,000	7	\$222,700	996	\$602,816	22	\$40,500			79	\$2,816,785
Albany, N. Y.....	1926	3	110,000	6	200,171	15	408,000	5	14,500	202	175,863	19	56,509			5	5,002,500
Atlanta, Ga.....	1927	3	50,500	1	98,000	1	100,000	6	453,500	184	211,900	22	59,200				
Baltimore, Md.....	1927	6	90,500	7	231,850	3	160,000	3	74,100	194	21,232	20	57,350	1	\$240,000	4	1,465,000
Birmingham, Ala.....	1927	6	81,000	4	275,000	2	145,000	3	135,000	182	18,827	18	57,825	4	1,150,000		
Birmingham, Ala.....	1927	2	19,265	8	382,000	22	275,500	5	147,000	1,671	974,060	22	88,500	3	100,000	3	96,000
Boston, Mass.....	1926	33	631,226	11	177,500	18	316,243	8	137,000	1,731	871,100	11	53,000	1	100,000	2	10,000
Boston, Mass.....	1926	3	220,000	12	201,750	23	120,750	15	135,360	130	17,515	17	115,500	4	123,500	2</	

Detroit, Mich.	1926	8	818,000	10	384,000	79	2,998,188	57	1,945,358	2,290,477	91	219,900	1	7,000	17	3,068,000
Duluth, Minn.	1927	10	8,303,500	20	1,031,600	70	5,235,802	50	1,094,950	1,582,804	136	342,056	1	7,000	18	2,920,340
El Paso, Tex.	1926	2	23,000	1	14,500	6	114,100	4	33,000	48,820	8	62,000	1	7,000	1	107,000
Fall River, Mass.	1927	1	8,000	1	40,000	1	7,000	1	3,500	44,995	5	6,100	1	7,000	2	137,400
Flint, Mich.	1926	2	250	2	188,000	2	3,000	10	14,650	15,000	1	500	1	7,000	1	75,000
Fort Worth, Tex.	1927	6	510,000	5	70,320	13	495,445	10	13,475	41,745	4	3,890	1	7,000	3	57,896
Grand Rapids, Mich.	1926	1	1,350,000	4	90,250	35	2,064,218	8	4,000	180,339	4	52,125	11	7,000	11	497,600
Hartford, Conn.	1927	18	114,312	3	51,000	71	44,000	71	297,167	283,894	8	23,445	1	7,000	1	1,000,000
Houston, Tex.	1926	10	102,615	6	102,615	6	78,914	75	430,165	41,477	10	73,500	2	62,162	3	59,500
Indianapolis, Ind.	1927	3	150,200	11	98,000	11	98,000	11	79,500	238,760	17	39,500	2	26,500	9	216,650
Jersey City, N. J.	1926	1	84,000	3	134,800	3	82,800	29	116,145	238,290	17	50,050	1	260,000	3	299,809
Kansas City, Kans.	1927	1	109													

TABLE 6.—NUMBER AND ESTIMATED COST OF BUILDINGS (NEW CONSTRUCTION, AND REPAIRS, ALTERATIONS, AND ADDITIONS TO OLD BUILDINGS) COVERED BY PERMITS ISSUED IN THE FIRST HALF OF 1926 AND 1927, BY INTENDED USE OF BUILDINGS—Continued

PART 2.—NEW NONRESIDENTIAL BUILDINGS—Continued

City and state	First half of each year	Amusement and recreation places		Churches		Factories, shops, etc.		Garages (public)		Garages (private)		Gasoline and service stations		Institutions		Office buildings	
		Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost
New York, N. Y.: The Bronx.....	1926	24	\$2,940,250	7	\$825,000	71	\$2,963,500	51	\$2,023,000	518	\$438,070	13	\$19,400			7	\$286,300
	1927	26	7,945,500	9	670,000	48	1,661,800	207	3,766,980	408	174,500	12	64,200			19	520,800
Brooklyn.....	1926	30	3,651,000	18	1,348,000	92	4,770,300	84	963,100	2,780	1,899,700	20	25,000			15	4,064,000
	1927	27	6,783,000	8	610,000	113	4,341,400	82	3,191,500	2,650	1,399,915	37	162,525		\$75,000	23	4,508,500
Manhattan.....	1926	18	3,240,000	3	880,000	38	2,536,000	25	2,887,000	85	23,820	7	294,050			39	17,909,200
	1927	20	6,756,000	2	2,800,000	24	11,258,000	28	4,816,300	149	34,700	7	5,750			47	51,370,500
Queens.....	1926	16	2,101,790	2	846,000	50	8,707,000	41	1,019,300	2,997	1,304,000	13	102,440		1,850,000	29	906,600
	1927	25	4,193,840	12	2,376,500	45											

City	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141
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TABLE 6.—NUMBER AND ESTIMATED COST OF BUILDINGS (NEW CONSTRUCTION, AND REPAIRS, ALTERATIONS, AND ADDITIONS TO OLD BUILDINGS) COVERED BY PERMITS ISSUED IN THE FIRST HALF OF 1926 AND OF 1927, BY INTENDED USE OF BUILDINGS—Continued

PART 2.—NEW NONRESIDENTIAL BUILDINGS—Continued

City and State	First half of each year	Public buildings		Public works and utilities		Schools, libraries, etc.		Sheds		Stables and barns		Stores, warehouses, etc.		All other		Total	
		Number	Cost	Number	Cost	Number	Cost	Number	Cost	Number	Cost	Number	Cost	Number	Cost	Number	Cost
Akron, Ohio.....	1926	—	—	—	—	2	\$181,000	11	\$11,300	—	—	45	\$611,545	—	—	1,063	\$1,807,261
Albany, N. Y.....	1927	—	—	5	\$77,500	2	320,000	12	5,835	—	—	—	—	—	—	1,197	3,860,351
Albany, N. Y.....	1926	1	\$72,000	2	726,000	3	1,205,000	6	1,265	—	—	5	161,500	—	—	258	8,081,528
Atlanta, Ga.....	1927	—	—	1	110,000	1	250,000	9	1,200	—	—	17	184,800	—	—	244	1,391,600
Atlanta, Ga.....	1926	2	22,660	2	270,000	3	136,606	95	46,027	—	—	86	5,378,340	—	—	421	8,376,555
Baltimore, Md.....	1927	2	35,000	—	—	—	—	135	47,445	—	—	87	1,269,150	—	—	442	1,957,387
Baltimore, Md.....	1926	2	—	5	731,000	3	730,000	105	63,080	—	—	35	798,000	—	—	1,885	5,431,170
Birmingham, Ala.....	1927	—	—	2	230,000	2	950,000	2	3,503	1	\$4,000	45	\$89,000	—	—	1,818	4,027,600
Birmingham, Ala.....	1926	2	147,500	1	100,000	3	192,267	50	17,403	2	8						

Detroit, Mich.	1926	5	1,101,639	1	126	2,957,550	18	2,957,550	27	4,275	2	22,100	522	5,898,739	13	273,300	8,754	20,854,082
Duluth, Minn.	1927	2	655,000	2	78,500	1,645,063	8	710,000	27	4,275	2	22,100	297	4,292,987	10	182,200	6,442	27,823,901
El Paso, Tex.	1926	1	40,000	1	1,600	70,000	4	70,000	35	8,955	2	5,100	6	140,093	10	108,415	287	1,333,303
Fall River, Mass.	1927	1	8,000	1	4,240	75,000	1	75,000	15	2,565	1	40	19	95,300	4	3,976	290	858,526
Flint, Mich.	1926	1	18,000	1	18,000	382,500	1	382,500	41	14,890	1	35	22	122,080	2	8,550	106	56,740
Fort Worth, Tex.	1927	1	721,522	1	18,000	1,848,000	7	1,848,000	59	16,727	1	35	14	171,337	25	9,218	157	238,310
Grand Rapids, Mich.	1926	2	25,000	2	90,000	241,300	4	241,300	31	2,675	12	14,800	180	829,202	9	7,841	397	3,600,300
Hartford, Conn.	1927	4	90,000	1	90,000	165,000	1	165,000	37	9,250	1	30	23	391,050	4	8,550	999	1,139,160
Houston, Tex.	1926	3	1,624,300	1	6,000	313,477	2	313,477	29	13,975	1	30	42	576,200	11	280,500	935	1,513,465
Indianapolis, Ind.	1927	2	70,111	3	72,000	701,146	1	701,146	23	11,095	1	30	12	211,421</				

TABLE 6.—NUMBER AND ESTIMATED COST OF BUILDINGS (NEW CONSTRUCTION, AND REPAIRS, ALTERATIONS, AND ADDITIONS TO OLD BUILDINGS) COVERED BY PERMITS ISSUED IN THE FIRST HALF OF 1926 AND OF 1927, BY INTENDED USE OF BUILDINGS—Continued

PART 2.—NEW NONRESIDENTIAL BUILDINGS—Continued

City and State	First half of each year	Public buildings		Public works and utilities		Schools, libraries, etc.		Sheds		Stables and barns		Stores, warehouses, etc.		All other		Total	
		Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost	Num-ber	Cost
New York, N. Y.:	1926	5	\$245,000			7	\$948,000	343	\$63,070			79	\$1,816,000	8	\$11,400	1,133	\$12,488,689
The Bronx.....	1927			2	\$75,000	4	2,090,000					108	2,503,750			843	19,481,580
Brooklyn.....	1926	13	2,735,000			3	850,000			4	\$1,500	98	1,064,650	400	257,330	3,547	21,069,580
	1927	4	400,000			4	2,256,000					78	1,760,700	439	589,415	3,466	25,977,955
Manhattan.....	1926	2	85,000			4	2,745,000			2	2,000	38	14,949,500	19	16,618	277	71,258,818
	1927	6	435,000			4	3,830,000					40	8,325,000	14	8,605	345	91,490,455
Queens.....	1926	1	2,500	5	524,000	8	1,481,000	26	15,505	3	24,000	204	2,473,820	134	70,211	3,547	16,558,626
	1927	7	933,000	11	745,000	13	8,615,700	40	28,966	8	101,4						

